Pro-face
Human Machine Interface

Pro-face®

PL-6930/PL-7930 Series

User Manual

Preface

Thank you very much for purchasing a Pro-face PL-6930/PL-7930 Unit, hereafter referred to as PL. PL is a general-purpose computer for Factory Automation (FA), which accomplished high performance and the newest architecture with low cost. Before using the PL, read this manual thoroughly to familiarize yourself with the PL's operation procedures and functions.

NOTICE

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Essential Safety Precautions

All safety-related procedures stated in this document must be followed to operate the PL correctly and safely. Be sure to read this and any related documents thoroughly to understand the correct operation and functions of the PL unit.

Safety Icons

Throughout this manual, these icons provide essential safety information for PL operation procedures requiring special attention. These icons indicate the following levels of danger:

⚠ WARNING	Indicates situations where severe bodily injury, death or major equipment damage can occur.
⚠ CAUTION	Indicates situations where slight bodily injury or minor equipment damage can occur.
⃠	Indicates actions or procedures that should NOT be performed.
❗	Indicates actions or procedures that MUST be performed to ensure correct unit operation.

⚠ WARNING

System Design

⃠ Do not create PL touch panel switches that could possibly endanger the safety of personnel or equipment. A malfunction of the PL unit, its I/O unit(s), cable(s), or other related equipment can cause unexpected output signals, leading to a serious accident. Be sure to design all important machine operation switches so they are operated via a separate control system, and not via the PL.

⃠ Do not create PL touch panel switches to control machine safety operations, such as an emergency stop switch. Install these switches as separate hardware switches, otherwise severe bodily injury or equipment damage can occur.

❗ Be sure to design your system so that a communication fault between the PL and its host controller will not cause equipment to malfunction. This is to prevent any possibility of bodily injury or equipment damage.

⃠ Do not use the PL as a warning device for critical alarms that can cause serious operator injury, machine damage or can halt system operation. Critical alarm indicators and their control/activator units must be designed using stand-alone hardware and/or mechanical interlocks.

⃠ Do not use the PL with aircraft control devices, aerospace equipment, central trunk data transmission (communication) devices, nuclear power control devices, or medical life support equipment, due to these devices' inherent requirements of extremely high levels of safety and reliability.

Be sure to use redundant and/or fail-safe system designs to ensure adequate levels of system reliability and safety when using the PL with transportation vehicles (trains, cars and ships), disaster and crime prevention devices, various types of safety equipment, non-life support related medical devices, and other similar equipment.

After the PL unit's backlight burns out the touch panel is still active, unlike the PL unit's "Standby Mode". If the operator fails to notice that the backlight is burned out and touches the panel, a potentially dangerous machine operation error can occur. Therefore, do not create PL unit touch panel switches that may cause injury and/or equipment damage.

If your PL unit's backlight suddenly turns OFF, use the following steps to determine if the backlight is actually burned out.

1) If the PL unit's "Backlight Control" is not set and the screen has gone blank, your backlight is burned out.
2) If the PL unit's "Backlight Control" is set to Standby Mode and the screen has gone blank, and touching the screen or performing another input operation does not cause the display to reappear, your backlight is burned out.

Handling

Do not modify the PL unit. Doing so may cause a fire or an electric shock.

Do not operate the PL in an environment where flammable gases are present, since it may cause an explosion.

Wiring

To prevent an electric shock be sure to disconnect your PL unit's power cord from the power supply before wiring the PL.

Do not use voltage beyond the PL unit's specified range. Doing so may cause a fire or an electric shock.

Maintenance

Do not connect or disconnect Host and PL unit communication cables while the PL is turned ON.

The PL uses a lithium battery for backing up its internal clock data and the battery may explode if it is replaced incorrectly. When replacement is required, use a Pro-face-designated product.

SEE → *8.6 Replacing the Internal Battery (page8-15)*

⚠ CAUTION

Installation

Be sure all cable connectors are securely attached to the PL unit. A loose connection may cause incorrect input or output signals.

Wiring

Be sure to ground the PL unit's FG wire separately from other equipment FG lines. Also, be sure to use a grounding resistance of 100Ω or less and a 2mm^2 or thicker wire, or your country's applicable standard. Otherwise, electric shock or malfunctions may result.

Be sure to use only the designated torque to tighten the PL unit's terminal block screws. If these screws are not tightened firmly, it may cause a short-circuit, fire or incorrect unit operation.

Be sure that metal particles and wiring debris do not fall inside the PL unit. They can cause a fire, malfunction or incorrect unit operation.

Maintenance

Do not reset or turn the PL OFF, or insert or remove the hard disk or the CF Card while the PL unit's CF Card is being accessed. Otherwise, the data in the hard disk or CF Card may be damaged or lost.

Unit Disposal

When the product is disposed of, it should be done so according to your country's regulations for similar types of industrial waste.

General Safety Precautions

Do not press on the PL unit's display with excessive force or with a hard object, since it can damage the display. Also, do not press on the touch panel with a pointed object, such as the tip of a mechanical pencil or a screwdriver, since doing so can damage the touch panel.

Do not install the PL where the ambient temperature exceeds the specified range. Doing so may cause a unit malfunction.

To prevent abnormally high temperatures from occurring inside the PL, do not restrict or block the PL unit's rear-face ventilation slots.

Do not operate the PL in areas where large, sudden temperature changes can occur. These changes can cause condensation to form inside the PL, possibly causing it to malfunction.

Do not allow water, liquids or metal fragments to enter inside the PL unit's case, since they can cause either a malfunction or an electric shock. For use in Pollution Degree 2 environment.

Do not operate or store the PL in locations where it can be exposed to direct sunlight, high temperatures, excessive dust, moisture or vibration.

Do not operate or store the PL where chemicals evaporate, or where chemicals are present in the air.

Corrosive chemicals : Acids, alkalines, liquids containing salt
Flammable chemicals : Organic Solvents

Do not use paint thinner or organic solvents to remove dirt or oil from the PL unit's surface. Instead, use a soft cloth moistened with a diluted neutral detergent.

Do not use or store the PL in areas with direct sunlight, since the sun's ultraviolet rays may cause the LCD's quality to deteriorate.

Do not store the PL in an area where the temperature is lower than that recommended in the PL unit's specifications. Doing so may cause the LCD display's liquid to congeal, which can damage the LCD. Also, if the storage area's temperature becomes higher than the specified level, the LCD's liquid may become isotropic, causing irreversible damage to the LCD. Therefore, only store the PL in areas where temperatures are within the PL unit's specifications.

After turning OFF the PL, be sure to wait a few seconds before turning it ON again. The PL may not operate correctly if it is restarted too quickly.

Due to the possibility of unexpected accidents, be sure to back up the PL unit's data regularly.

LCD Panel Usage Precautions

- The LCD panel's liquid contains an irritant. If the panel is damaged and any of this liquid contacts your skin, immediately rinse the area with running water for at least 15 minutes. If the liquid gets in your eyes, immediately rinse your eyes with running water for at least 15 minutes and consult a doctor.
- The PL unit's LCD screen may show unevenness in the brightness of certain images or at some contrast settings. This is an LCD characteristic and not a product defect.
- The PL unit's LCD screen pixels may contain minute black and white-colored spots. This is an LCD characteristic and not a product defect.
- The color displayed on the PL unit's LCD screen may appear different when seen from outside the specified viewing angle. This is an LCD characteristic and not a product defect.
- When the same image is displayed on the PL unit's screen for a long period, an afterimage may appear when the image is changed. If this happens, turn off the PL, wait 10 seconds and then restart the unit. This is an LCD characteristic and not a product defect.
- To prevent an afterimage:
  - Set the PL unit's display OFF feature when you plan to display the same screen image for a long period of time.
  - Change the screen image periodically and try to not display the same image for a long period of time.

Information Symbols

This manual uses the following icons:

IMPORTANT	Indicates a warning or a product limitation. Be sure to follow the instructions given with this icon to ensure the safe operation of the PL.
NOTE	Contains additional or useful information.
(1) (2)	Indicates steps used to accomplish a given task. Be sure to follow these steps in the order they are written.
*1	Indicates useful or important supplemental information.
SEE→	Indicates pages containing related information.
PL-X930 Series	Indicates a generic name for the products of PL-6930 and PL-7930.

The Diagram for the PL Series Models

The type

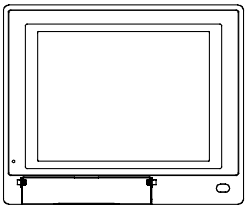
PL＊93＊-T4＊
A B C D E

A	6	PL-6930 Series (12 inch type)
	7	PL-7930 Series(15 inch type)
B	0	4 Slot Type
	1	2 Slot Type
C	T	TFT color LCD Type
D	4	CE Marking, UL/c-UL Approval
E	1	Model without FAN CPU: CeleronM 1.3GHz
	2	Model attached FAN CPU: PentiumM 1.6GHz, or CeleronM 1.3GHz (Embedded Optional Items)

Package Contents

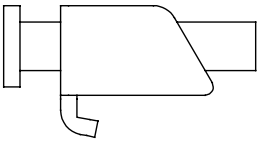
The following items are included in the PL unit's package. Before using the PL, please check that all items listed below.

PL Unit (1)



(PL-6930/PL-6931/PL-7930/PL-7931)

Installation Fasteners

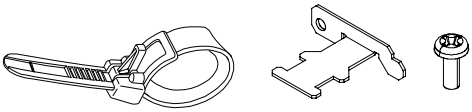


4 / set x 2 for PL-6930 Series
4 / set x 3 for PL-7930 Series

Installation Guide (1)

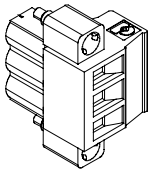
Protective Clamp (1 Set)

(The set includes Clamp(1),Bracket(1),Screw(1))

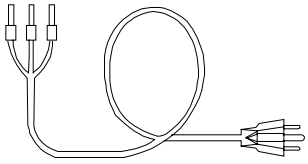


Installation Gasket (1) (Attachment Setting)

Power Plug (1)



Power Cord (1)



IMPORTANT

- The power cord for PL is designed only for AC100V use. Under other voltage situation, you should use a different cord in conformity with the voltage.
- The power cord is exclusively for this product and it cannot be used for other electric devices.

NOTE

- If your PL unit contains a built-in accessory, that accessory's Installation Guide will also be included in the PL's packing box. Please check that all items normally included with that accessory are also included in this box.

This unit has been carefully packed, with special attention to quality. However, should you find anything damaged or missing, please contact your local PL distributor immediately.

Main Features

The PL-6930/PL-7930 series displays are equipped with the following features.

- The Latest, High-Performance Architecture

  Designed around the Pentium®M (1.6GMHz) or Celeron®M (1.3GMHz) CPU, the PL utilizes the type of high performance architecture that offers you superior compatibility. Add to this unrivalled support of the Windows® XP and other widely used operating systems.

- High Expendability

  PL supports expansion PCI/ISA bus. For the 4 slot type (PL-6930 and PL-7930) three slots are available for both PCI bus and ISA bus. For the 2 slot type (PL-6931 and PL-7931) one slot is available for a PCI bus and two slots are available for ISA bus.

- Bright LCD with a Wide Viewing Angle

  The PL's large TFT LCD display offers excellent visibility and brightness.

  NOTE

  - Pro-face's top of the line TFT color LCD allows you to create detailed and powerful visual images, with excellent brightness, a wide viewing angle, and a display capable of 64K colors.

- High Resolution, Analog-Resistance-Film Touch Panel

  Standard equipment with the PL is a high resolution 1024 x 1024 touch panel, and the mouse emulation utility provides mouse-like functionality and pointer control.

- Easy Front Panel Installation

  The PL is designed to be installed easily into the front of any panel or device. It is also rugged enough for use in harsh, industrial environments, such as those found in the factory automation industries and provides protection equivalent to the IP65f standard.

- Front-Access Port execution control function

  This function can control some accesses from the access ports (USB port or reset switch) of the front face. This operation prevents your important data from unwilling accesses, which may harm or destroy.

  SEE → *1.1.2 Front Access Port Execution Control (page1-4)*

- Supporting USB2.0

  USB2.0 supports USB High-speed devices.

UL Approval

PL6930-T4*, PL6931-T4*, PL7930-T4*, PL7931-T4* are UL/c-UL listed products (UL File No. E220851)

Product Model No.	UL Registration Model No.	Product Model No.	UL Registration Model No.
PL6930-T41	3480901-01	PL7930-T41	3480901-05
PL6930-T42	3480901-02	PL7930-T42	3480901-06
PL6931-T41	3480901-03	PL7931-T41	3480901-07
PL6931-T42	3480901-04	PL7931-T42	3480901-08

Those products conform to the following standards:

- UL508 Industrial Control Equipment
- CSA-C22.2 No.142-M1987 (c-UL Approval) Standard for Process Control Equipment

<Cautions>

Be aware of the following items when building the PL into an end-use product:

- The PL unit's rear face is not approved as an enclosure. When building the PL unit into an end-use product, be sure to use an enclosure that satisfies standards as the end-use product's overall enclosure.
- For use on flat surface of a type 1 Enclosure.
- The PL unit must be used indoors only.
- Install and operate the PL with its front panel facing outwards.
- If the PL is mounted so as to cool itself naturally, be sure to install it in a vertical panel. Also, insure that the PL is mounted at least 50 mm away from any other adjacent structures or machine parts. If these conditions are not met, the heat generated by the PL unit's internal components may cause it to fail to meet UL standards.

CE Marking

PL6930-T4*, PL6931-T4*, PL7930-T4*, PL7931-T4* are CE marked products that conform to EMC compliant.

<Compliant Standards>

- Saftey

  EN60950-1
- EMI

  EN55011 ClassA, EN61000-3-2, EN61000-3-3
- EMS

  EN61000-6-2

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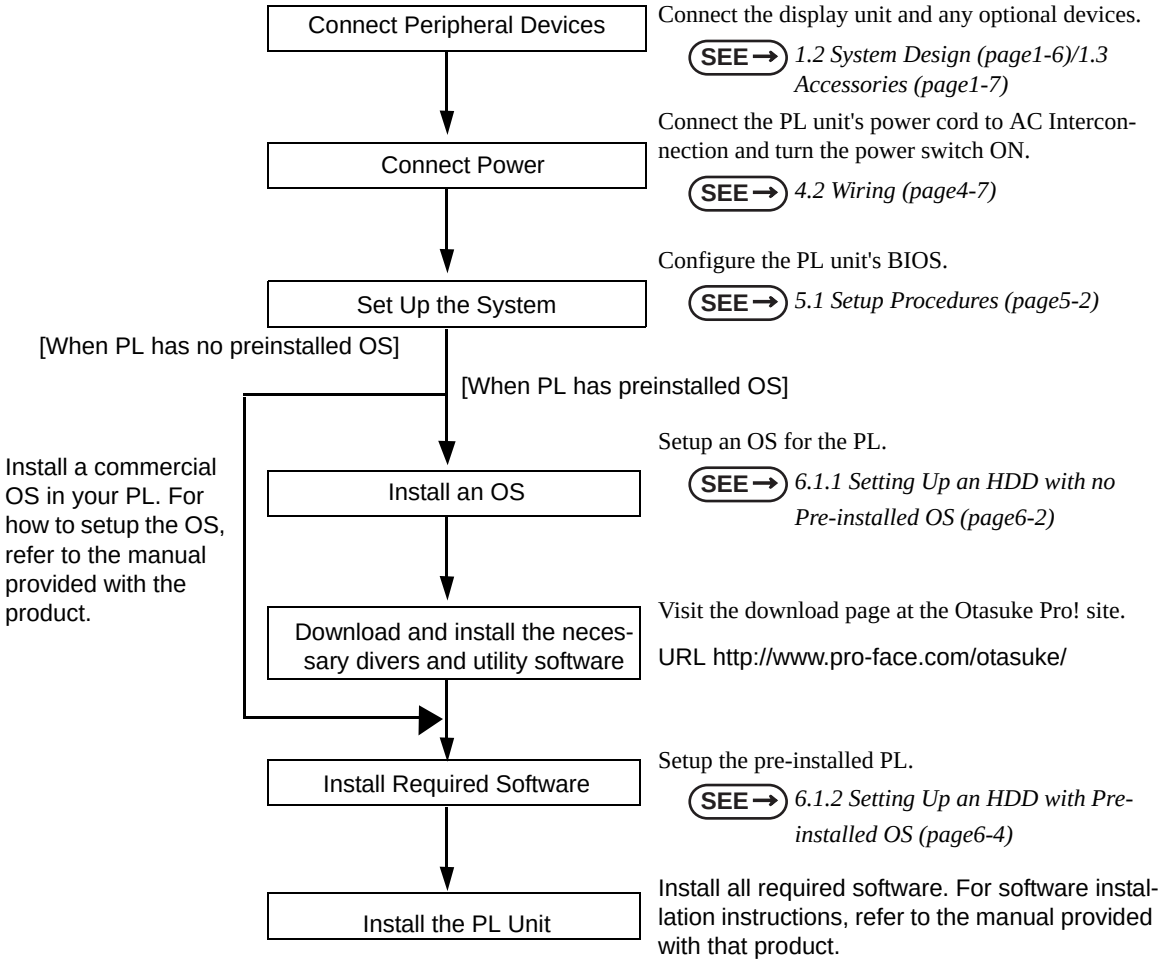
1 Introduction

1. Prior to Operating the PL Unit
2. System Design
3. Accessories
4. Part Names and Functions

This chapter describes peripheral devices that can be connected to PL Series units along with the name and functions of each part.

1.1 Prior to Operating the PL Unit

The following procedures are prior to use the PL unit.


Connect Peripheral Devices
Connect the display unit and any optional devices.
SEE → 1.2 System Design (page1-6)/1.3 Accessories (page1-7)
Connect Power
Connect the PL unit's power cord to AC Interconnection and turn the power switch ON.
SEE → 4.2 Wiring (page4-7)
Set Up the System
Configure the PL unit's BIOS.
SEE → 5.1 Setup Procedures (page5-2)
[When PL has no preinstalled OS]
[When PL has preinstalled OS]
Install a commercial OS in your PL. For how to setup the OS, refer to the manual provided with the product.
Install an OS
Setup an OS for the PL.
SEE → 6.1.1 Setting Up an HDD with no Pre-installed OS (page6-2)
Download and install the necessary divers and utility software
Visit the download page at the Otasuke Pro! site.
URL http://www.pro-face.com/otasuke/
Install Required Software
Setup the pre-installed PL.
SEE → 6.1.2 Setting Up an HDD with Pre-installed OS (page6-4)
Install the PL Unit
Install all required software. For software installation instructions, refer to the manual provided with that product.

IMPORTANT

- After hardware setup is completed, the OS (Windows®2000, Windows®XP) must be used to create partitions and format (initialize) the HDD before any data or applications can be saved to the hard disk drive. For details concerning these procedures, refer to the OS manufacturer's instruction manual.
- Whenever you turn the PL unit's power OFF, wait until the internal HDD stops spinning (approximately 5 seconds) before turning the power ON again.
- The PL's hard disk is designed for use with the Windows®2000, Windows®XP. This driver software can't be applied to other operating systems.

1.1.1 Setting Up the Touch Panel Connection

The connection method used can be via either a serial (RS-232C) or USB interface. Depending on the type of Touch Panel connection used, the OS types that can be used will vary.

■ Touch Panel Changeover Switch

The switch changes the switch placed on the board inside of the unit to a state of COM4.

See the following for the place of the chageover switch.

SEE→ *1.4 Part Names and Functions (page1-9)*

■ Mouse Emulation Software

When installing the Mouse Emulation Software, be sure to select Serial communication (COM4).

1.1.2 Front Access Port Execution Control

When you open the front maintenance hatch of the front unit, there are USB ports and a reset switch. If you want to prevent unwilling or unintentional accesses, change the DipSW settings not to be executed some accesses from reset from the front side or the USB ports.

See the following for the place of the DipSW.

SEE→ *1.4 Part Names and Functions (page1-9)*

■ DipSW

For the factory default settings; SW No.1 is ON, the others are OFF.

SW No.	Meaning	ON	OFF	Notes
1	Sets up an enabled/disabled state for the front USB*1 port execution control function	Enabled	Disabled	The front USB port is available when the SW is ON. It is unavailable when the SW is OFF.
2	Used for the system	Reserved	Reserved	Do not change the initial setting.
3	Sets up an output of the USB control signals(RAS DOUT2) if needed.	Output mode for UPS Shutdown	Normal Output	RAS DOUT2 is the only for the UPS control output when the SW is ON. In that case, RAS OUT2 cannot be used for normal output.
4	Implements the logical inversion operation for RAS output	Normal Close	Normal Open	RAS output is a CLOSE state when the SW and the system is ON. When the SW is OFF, it is the opposite. The RAS Output keeps Normal OPEN when the Soft OFF*2 state occurs or the power turns OFF.
5	Set up an enabled/disabled state for the port execution control function of the front reset switch.	Disabled	Enabled	The hardware switch is unavailable when the SW is ON. But, it is available to enter switch from the Soft OFF*2 state.
6	Used for the system.	Reserved	Reserved	Do not change the initial setting.
7				
8				

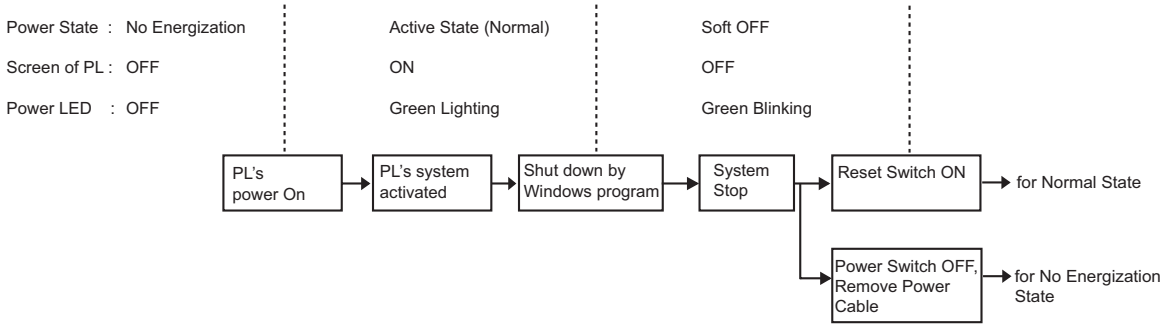
*1 The Setting up an enabled/Disabled state for USB port execution control function is available for only Windows®2000 and Windows®XP. Make sure to disable the function of the setting when other OS used.

*2 The Soft OFF refers to the state that Windows® has been shut down and the power is provided only for the electric circuit to boot system. This Soft OFF State is different from what is System Standby set by Windows®. For the state of Soft OFF, see the following.

SEE→ *1.1.3 Power Supply (page1-5)*

1.1.3 Power Supply

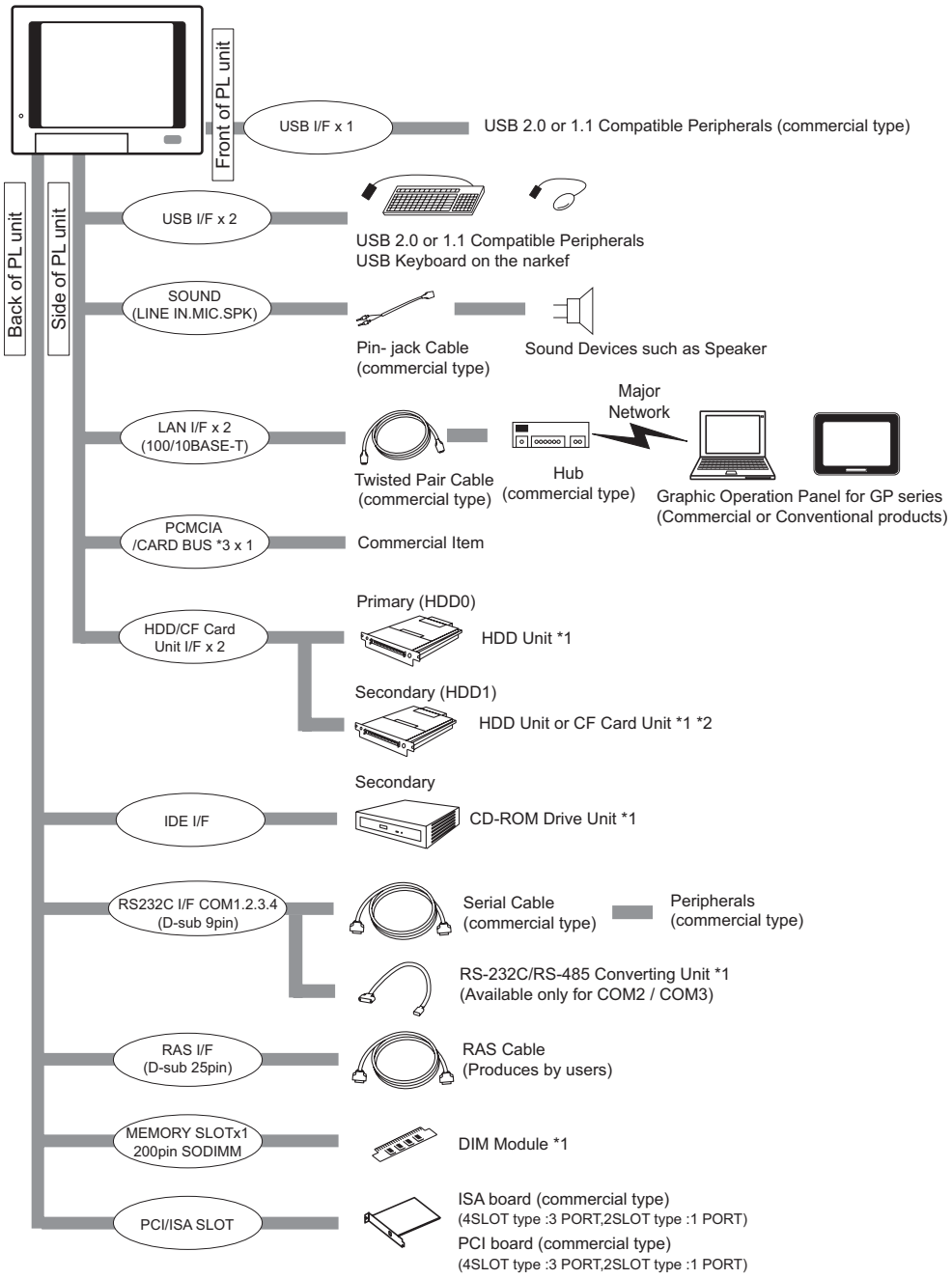
About states of PL's power supply, there are three(3) kinds of states, which are No Energization, Active State (Normal), and Soft OFF State[*1]. Each state is outlined in the following.



*1 The Soft OFF refers to the state that Windows® has been shut down and the power is provided only for the electric circuit to boot system. This Soft OFF State is different from what is System Standby set by Windows®.

1.2 System Design

The following diagram illustrates the standard range of items that can be connected to the unit.



NOTE • This diagram shows only the PL's internal layout and connectable devices. The user's actual design may differ.

*1 The Pro-face's optional devices used with PL.

*2 When using the HDD unit with the CD-ROM drive unit at the same time, be sure to set the HDD unit's setting as Master. [Chapter 3 Uninstalling / Installing HDD units / CF card units (page3-6).]

*3 The CARD BUS doesn't include functions of ZOOMED VIDEO, SOUND.

1.3 Accessories

All accessories listed here are produced by Digital Electronics Corporation.

■ Optional Items

Product Name	Model No.	Description
DIM Module Memory	PSA-DDR512	DIM module 512M Bytes
	PSA-DDR1G	DIM module 1G Bytes
CD-ROM Drive Unit	PSS-CD01	IDE (ATAPI) compatible CD-ROM drive unit (Connection cable is included with CD-ROM unit)
CF Card Unit	PL-CF200	Designed exclusively for 5V type cards.
Hard Disk Unit	PL-HD240	HDD Unit mounted a Type 2.5 Hard Disk The capacity is 40G byte and it doesn't include OS.
Full Sized Board Cover	PL-FC200	Used when ISA full-sized expansion board is used. (Used only with PL-6931/PL-7931.)
	PL-FC210	Used when ISA full-sized expansion board is used. (Used only with PL-6930/PL-7930)
RS-232C/RS-485 Converting Unit	PL-RC500	RS232C - a converting unit for RS485.When used, it should be placed on COM2 or COM3.
Screen Protection Sheet	PL-CS100	Disposable sheet that protects the PL unit's screen and prevents from dust. (5 sheets/set) (Hard type)
CF Card	CA3-CFCALL/128MB-0*	TYPE 1 128M byte
	CA3-CFCALL/256MB-0*	TYPE 1 256M byte
	CA3-CFCALL/512MB-0*	TYPE 1 512M byte
	CA6-CFCALL/1GB-01	TYPE 1 1G byte

IMPORTANT

- Since the PL unit's hard disk drive (HDD) is a consumable item, i.e. it has a limited lifetime, be sure to back up its data regularly and prepare a spare HDD unit.
- The Hard Disk lifetime given here may be reduced due to unforeseen environmental factors.The disk will be available until either of the following conditions comes first. One is it spends 20,000 energization hours, the other is it reaches 5 years. Those conditions are under at a condition of the surrounding temperature 20 °C. The use condition and its environment will affect the lifetime span.

■ Maintenance Items

Product Name	Model No.	Description
Installation Fastener	CA3-ATFALL-01	Used to install the PL into a solid panel. (4/set x 2 for PL-6930 Series, 4/set x 3 for PL-7930 Series)
Installation Gasket	PL6900-WP00 (PL-6930 Series)	Provides dust and moisture resistance when PL is installed into a solid panel.
	PL7900-WP00 (PL-7930 Series)	
Replacement Backlight	CA3-BLU12-01 (PL-6930 Series)	Replacement backlight
	CA3-BLU15-01 (PL-7930 Series)	

■ Commercially Available Items

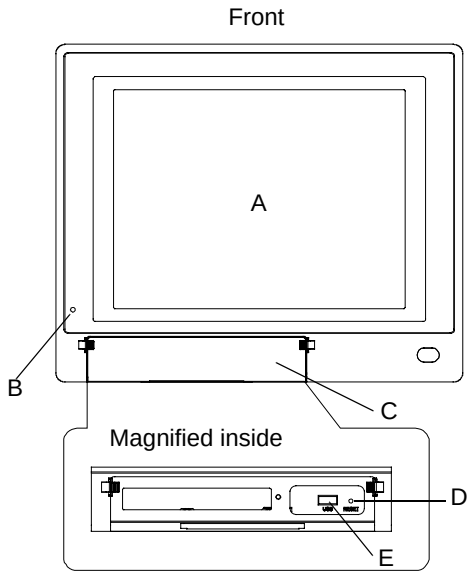
The PL-6930 and PL-7930 Series units can all use commercially available expansion boards (PCI/ISA compatible) as well as a standard keyboard, mouse, printer, etc. When using a USB cable, the PL-6930 and PL-7930 Series units can also use USB compatible devices. However, among the commercially available USB devices, not all will be compatible with the PL unit.

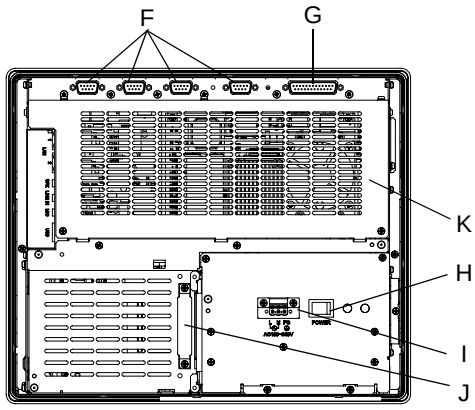
NOTE

- Be sure to use only DIM modules manufactured by Digital. Installing other DIM modules may result in either damage to or failure of the PL, and will void your warranty.
- When using USB type devices, be sure they are USB compatible, and be sure to read that device's installation guide prior to connecting it to the PL.

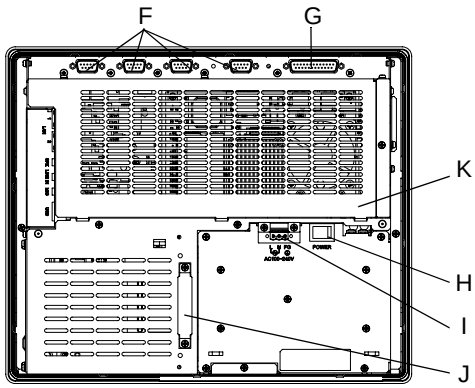
1.4 Part Names and Functions

The following images are of a PL-6930/PL-7930 Series unit.





Rear (4 slot type)



Rear (2 slot type)

A: Display/Touch Panel

Display output area. The built-in SVGA or XGA controller supports PC compatible architecture. Mouse emulation, which is one of Touch panel functions, has a significant role to build system architecture easily without a mouse device.

B: Power Lamp LED/RAS Status Lamp

This LED indicates both the RAS monitor feature's status and the PL's power status. The status of the lamp changes according to the alarm type detected by the RAS feature.

SEE→ *7.1 RAS Features ◆LED Indicator (page7-5)*

C: Front Maintenance Cover

When you open this cover, there are a front USB connector and a reset switch.

D: Hardware Reset Switch (RESET)

E: USB Connector (USB)

USB 2.0 compatible devices can be connected here.

F: RS-232C Connector(COM1/COM2COM3/COM4)

These RS-232C interfaces (D-sub 9 pin male connectors), allow communication with other computers and connection to peripheral devices.The COM2 and COM3 ports are switchable for RI/+5V.

G: RAS connector (RAS)

Interface for DIN, DOUT, Watchdog, and Remote Reset. (D-sub 25 pin male connector)

H: Power Switch

Use this switch to turn the PL's power ON or OFF.

I: Power Connector

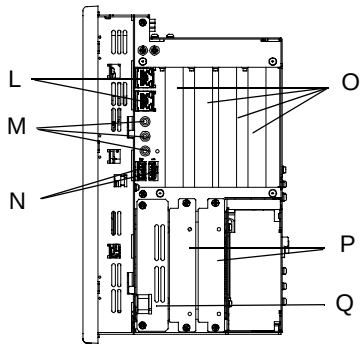
Plug a power cord in here.

J: IDE Cover

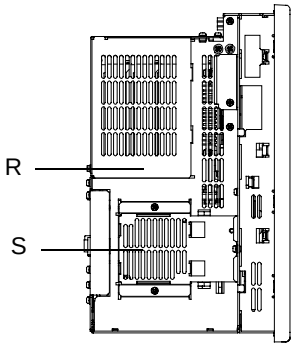
To connect the optional CD-ROM drive unit (PSS-CD01), remove this cover and use this connector.

K: Rear Maintenance Cover

To install DIM module and various expansion boards, which are optional products, remove this cover.

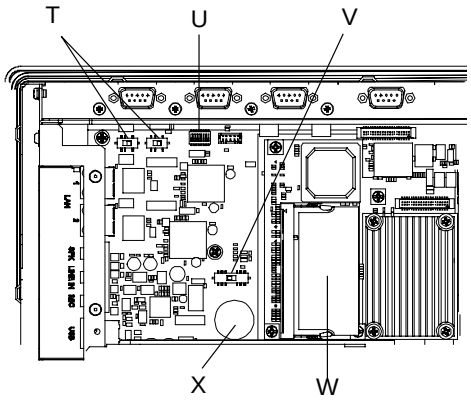


Right Side (4 slot type)



Left Side (4 slot type)

Magnified inside of Rear Maintenance Cover



L: Ethernet Connector (LAN)

Network Interface (meets IEEE802.3 standard / 10BASE-T/100BASE-TX autochangeover).

M: Sound I/O Interface

Used to Speaker output, Line input and Microphone input.

N: USB Connector (USB)

USB 2.0 compatible devices can be connected here.

O: PCI/ISA board Expansion Slot

Available to use commercial PCI/ISA bus compatible boards. From the front face side, the slot names are dubbed as the first slot, the second slot, the third slot, and the forth slot.*1

P: HDD/CF card unit expansion slot

These slots aim at installing HDD units or CF card units. From the front face side, the slot names are dubbed as the expansion slot0, and the expansion slot1.

Q: PCMCIA / CARD BUS slot

Available to use a commercial PCMCIA card / CARD BUS (CARD BUS excepts functions of ZOOMED VIDEO, SOUND, however).

R: Half Cover

S: Fan Cover

For the 2 slot type (PL-6931 and PL-7931), fan cover is in the bottom of unit.

T: Changeover Switch for RI/5V

The switch changes the RI/5V state of COM2 or COM3.

SEE → ■ *RI/5V Changeover (page2-13)*

U: DipSW

This is a mask switch for PL setting, which prevents accidental operation.

SEE → *1.1.2 Front Access Port Execution Control (page1-4)*

*1 For the 4 slot type (PL-6930 and PL-7930), the first slots is available only for ISA bus and the second slot is only available for PCI bus. For the 2 slot type (PL-6931 and PL-7931) the first slot is available only for ISA bus.

V: Touch Panel Changeover Switch

The communication method can be changed by USB or COM4.

SEE→ *1.1.1 Setting Up the Touch Panel Connection (page1-3)*

W: Main Memory

X: Internal Battery

NOTE

- Refer to the following to know how to uninstall the rear maintenance cover.

SEE→ *3.1.1 Uninstalling the Rear Maintenance Cover (page3-2)*

Memo

2 Specifications

1. General Specifications
2. Performance Specifications
3. Interface Specifications
4. Dimensions

This chapter describes the general, functional and interface specifications of the PL as well as its part names and dimensions.

2.1 General Specifications

2.1.1 PL-6930 Series General Specifications

■ Electrical

Item		PL-6930	PL-6931
Power Supply	Input Voltage	AC100 / 240V	
	Rated Voltage	AC85 to 265V	
	Rated Frequency	50Hz to 60Hz	
	Allowable Voltage Drop	1cycle or less (Voltage drop interval must be 1s or more.)	
	Current Consumption	150VA (max.)	130 VA (max.)
	leakage current	2.0mA (max.)	
	In-Rush Current	30A (max.)	
Voltage Endurance		AC1500V 20mA for 1 minute	
Insulation Resistance		DC500V 10MΩ (min.)	

■ Environmental

Item		PL-6930	PL-6931
Physical	Surrounding Air Temperature	Model without FAN (T41) : 5°C to 40°C (No HDD : 0°C to 40°C) Model attached FAN (T42) : 5°C to 50°C (No HDD : 0°C to 50°C)	
	Storage Temperature	-10°C to +60°C	
	Wet-bulb temperature (Maximum)	29°C	
	Ambient Humidity	10%RH (Relative Humidity) to 85%RH (Wet bulb temperature: 29°C max. - no condensation.)	
	Storage Humidity	10%RH to 85%RH (Wet bulb temperature: 29°C max. - no condensation.)	
	Dust	Free of dust	
	Pollution Degree	Pollution Degree 2	
	Corrosive gas	Free of corrosive gas	
Mechanical	Vibration Resistance	When not using HDD units:19.6m/s^2 (10Hz to 25Hz / 30 min. for each X, Y, and Z direction) When using HDD units:4.9m/s^2 (10Hz to 25Hz / 30 min. for each X, Y, and Z direction)	
Electrical	Noise Immunity (via noise simulator)	Noise Voltage: 1,500Vp-p Pulse Duration: 50ns, 500ns, 1μs Rise Time: 1ns	
	Electrostatic Discharge Immunity	4.0kV (complies with IEC61000-4-2)	
Noise Immunity (Fast Transient Burst Noise)		Power supply line: 2kV (IEC61000-4-4) COM port: 1kV (IEC61000-4-4)	

IMPORTANT

- When using any of the PL's optional devices, be sure to check that device's specifications for any special conditions or cautions that may apply to its use.
- As a Hard Disk has a lifetime, it might be broken during operation. To prepare an expected Hard Disk error, we recommend you take backup the data you need or keep an alternate Hard Disk to exchange.
- It may cause a fatal error that the Hard Disk is used in a high temperature and high moisture environment. We recommend that an appropriate environment be 29°C in Wet-bulb temperature (Maximum). This temperature, for example, is equal to 64%RH (Relative Humidity) at 35°C, or 44%RH at 40°C.

■ Structural

Item		PL-6930	PL-6931
Installation	Grounding	Grounding resistance of 100 Ω, 2mm^2 or thicker wire, or your country's applicable standard. (Same for FG and SG terminals)	
	Structure	Rating*1: Equivalent to IP65f (Only not using Front USB) figuration: Built-in type Installation method: Embedding	
	Cooling Method	Model without FAN (T41) : Natural air circulation Model attached FAN (T42) : Forced cooling by fan	
	Weight	Approx. 9.5kg [20.9lb]	Approx. 8.5kg [18.7lb]
	External Dimensions	W346mm [13.62in.] × H287mm [11.30in.] × D170mm [6.69in.]	W346mm [13.62in.] × H287mm [11.30in.] × D123mm [4.84in.]

*1 The front face of the PL unit, installed in a solid panel, has been tested using conditions equivalent to the standards shown in the specification. Even though the PL unit's level of resistance is equivalent to these standards, oils that should have no effect on the PL can possibly harm the unit. This can occur in areas where either vaporized oils are present, or where low viscosity cutting oils are allowed to adhere to the unit for long periods of time. If the PL's front face protection sheet becomes peeled off, these conditions can lead to the ingress of oil into the PL and separate protection measures are suggested. Also, if non-approved oils are present, it may cause deformation or corrosion of the front panel's plastic cover. Therefore, prior to installing the PL be sure to confirm the type of conditions that will be present in the PL's operating environment.

If the installation gasket is used for a long period of time, or if the unit and its gasket are removed from the panel, the original level of the protection cannot be guaranteed. To maintain the original protection level, be sure to replace the installation gasket regularly.

2.1.2 PL-7930 Series General Specifications

■ Electrical

Item		PL-7930	PL-7931
Power Supply	Input Voltage	AC100 / 240V	
	Rated Voltage	AC85 to 265V	
	Rated Frequency	50Hz to 60Hz	
	Allowable Voltage Drop	1cycle or less (Voltage drop interval must be 1s or more.)	
	Current Consumption	150VA (max.)	130VA (max.)
	leakage current	2.0mA (max.)	
	In-Rush Current	30A (max.)	
Voltage Endurance		AC1500V 20mA for 1 minute	
Insulation Resistance		DC500V 10MΩ (min.)	

■ Environmental

Item		PL-7930	PL-7931
Physical	Surrounding Air Temperature	Model without FAN (T41): 5°C to 40°C (No HDD : 0°C to 40°C) Model attached FAN (T42): 5°C to 50°C (No HDD : 0°C to 50°C)	
	Storage Temperature	-10°C to +60°C	
	Wet-bulb temperature (Maximum)	29°C	
	Ambient Humidity	10%RH (Relative Humidity) to 85%RH (Wet bulb temperature: 29°C max. - no condensation.)	
	Storage Humidity	10%RH to 85%RH (Wet bulb temperature: 29°C max. - no condensation.)	
	Dust	Free of dust	
	Pollution Degree	Pollution Degree 2	
	Corrosive gas	Free of corrosive gas	
Mechanical	Vibration Resistance	When not using HDD units:19.6m/s^2 (10Hz to 25Hz) / 30 min. for each X, Y, and Z direction) When using HDD units:4.9m/s^2 (10Hz to 25Hz) / 30 min. for each X, Y, and Z direction)	
Electrical	Noise Immunity (via noise simulator)	Noise Voltage: 1,500Vp-p Pulse Duration: 50ns, 500ns, 1µs Rise Time: 1ns	
	Electrostatic Discharge Immunity	4.0kV (complies with IEC61000-4-2)	
Noise Immunity (Fast Transient Burst Noise)		Power supply line: 2kV (IEC61000-4-4) COM port: 1kV (IEC61000-4-4)	

IMPORTANT

- When using any of the PL's optional devices, be sure to check that device's specifications for any special conditions or cautions that may apply to its use.
- As a Hard Disk has a lifetime, it might be broken during operation. To prepare an expected Hard Disk error, we recommend you take backup the data you need or keep an alternate Hard Disk to exchange.
- It may cause a fatal error that the Hard Disk is used in a high temperature and high moisture environment. We recommend that an appropriate environment be 29°C in Wet-bulb temperature (Maximum). This temperature, for example, is equal to 64%RH (Relative Humidity) at 35°C, or 44%RH at 40°C.

■ Structural

Item		PL-7930	PL-7931
Installation	Grounding	Grounding resistance of 100 Ω, 2mm^2 or thicker wire, or your country's applicable standard. (Same for FG and SG terminals)	
	Structure	Rating*1: Equivalent to IP65f (Only not using Front USB) figuration: Built-in type Installation method: Embedding	
	Cooling Method	Model without FAN (T41): Natural air circulation Model attached FAN (T42): Forced cooling by fan	
	Weight	Approx. 10.5kg [23.1lb]	Approx. 9.5kg [20.9lb]
	External Dimensions	W374mm [14.72in.] × H325mm [12.80in.] × D180mm [7.09in.]	W374mm [14.72in.] × H325mm [12.80in.] × D134mm [5.28in.]

*1 The front face of the PL unit, installed in a solid panel, has been tested using conditions equivalent to the standards shown in the specification. Even though the PL unit's level of resistance is equivalent to these standards, oils that should have no effect on the PL can possibly harm the unit. This can occur in areas where either vaporized oils are present, or where low viscosity cutting oils are allowed to adhere to the unit for long periods of time. If the PL's front face protection sheet becomes peeled off, these conditions can lead to the ingress of oil into the PL and separate protection measures are suggested. Also, if non-approved oils are present, it may cause deformation or corrosion of the front panel's plastic cover. Therefore, prior to installing the PL be sure to confirm the type of conditions that will be present in the PL's operating environment.

If the installation gasket is used for a long period of time, or if the unit and its gasket are removed from the panel, the original level of the protection cannot be guaranteed. To maintain the original protection level, be sure to replace the installation gasket regularly.

2.2 Performance Specifications

2.2.1 PL-6930 Performance Specifications

■ Performance Specifications

Item		PL6930-T41/PL6931-T41	PL6930-T42/PL6931-T41
CPU		Intel®Celeron® M (1.3GHz)	Intel®Pentium® M (1.6GMHz), or Intel®Celeron® M (1.3GHz) (Embedded Optional Items)
Main Memory (S.O-DIMM)		PC2700 DDR 256MB,512MB,1GB (DIMM socket × 1 1GB (max.))	
L2 Cache Memory		512KB(Built in the CPU)	Intel®Pentium® M (1.6GMHz) : 1MB Intel®Celeron® M (1.3GHz) : 512KB (Built in the CPU)
Video Memory		32MB to 64MB (UMA method)	
Interface	Serial (RS232C: with FIFO)	COM1	D-SUB 9 pin plug MALE
		COM2	D-SUB 9 pin plug MALE(5V/RI switching available)
		COM3	D-SUB 9 pin plug MALE(5V/RI switching available)
		COM4	D-SUB 9 pin plug MALE
	USB	• USB2.0 (Support for HI SPEED 480M bps) • The number of ports: Front (1) / Side (2) • Power supply voltage: 5V DC ±5% • Output current : 500mA(max.) • The maximum communication distance: 5m	
	RAS	D-SUB 25PIN MALE • 5DATA IN, 4DATA OUT (Including Reset Input) • +12V OUT • +5V OUT	
	LAN × 2	IEEE802.3 10BASE-T/100BASE-TX Auto exchange SIDE	
	SOUND I/O	Sound I/O, Line-input, MIC-input • Connector: Mini Pin Jack	
	IDE	• Ultra ATA100 • HD SLOT 2SLOT (Primary, Secondary) Master and Slave settings are set by HDD*1 • CD SLOT (Concurrent use with a 2SLOT HDD available*2)	
	PCMCIA /CARD BUS	• Corresponding to TypeII • Corresponding to CARD BUS (Excluding ZOOMED VIDEO and SOUND functions)	
	ISA	2SLOT/3SLOT	
	PCI	PCI Rev. 2.2 (33MHz) 1SLOT/3SLOT	
Clock Accuracy*3		± 180 sec. / month (fudge factor by the situation at normal temperature and power-off)	

*1 For the setting of Master/Slave, refer to the following section; Chapter 3 Uninstalling / Installing HDD units / CF card units (page3-6)

*2 When using the HDD SLOT1 (Expansion SLOT1) with the CD-ROM drive unit at the same time, be sure to set the HDD/CF card unit inside the Expansion SLOT1 as Master.

*3 The clock, RTC, built in the PL has fudge error. The range of the error will be between +300 to -300 sec. / month, depending on the PL's conditions such as lifetime usage or temperature difference. If you use the PL in a computer network that takes this error seriously, adjust the clock in regular intervals.

■ Display

Item	Specification
Type	12 inch SVGA TFT color LCD
Resolution	W800 x H600 dots (SVGA)
Dot pitch	W0.3mm [0.01in.] x H0.3mm [0.01in.]
Effective Display Area	W246.0mm [9.69in.] x H184.5mm [7.26in.]
Color/Shade level	260,000 colors
Backlight	CFL (Compact Fluorescent Lamp) 2-color-light system
Brightness control	4 levels of adjustment (Controlled by software)
Contrast Adjustment	None
View Angles	Horizontal Direction: 120 degrees, Vertical Direction: 100 degrees (Contrast ratio: CR is 10 or greater, or TYP value)
Display Service Life	50,000hrs.(MTTF) (Backlight display service life is not included.)
Backlight Service Life	50,000hrs. or more (at ambient temperature 25°C and continuous operation - a period until backlight brightness decreases to 50% or backlight starts to flicker)

■ Touch Panel

Item	Specification
Type	Resistive Film (analog)
Resolution	1024 x 1024
Service Life	1,000,000 times or more
Interface	USB or COM4

■ Expansion Slot

The following power current is the total output current when using all slots

<PL-6930(4 SLOT type)>

SLOT No.	Available Bus	Available Board Size	
		Standard Use	When using PL-FC210
SLOT1	ISA	163mm [6.42in.]x122mm [4.80in.](corresponding to Half size only)	
SLOT2	PCI	250mm[9.84in.]×122mm [4.80in.] (corresponding to 3Q size)	340mm [13.39in.] x 122mm [4.80in.] (corresponding to Full size)
SLOT3	PCI or ISA		
SLOT4	PCI or ISA		

Output Voltage	DC5V	DC12V	DC3.3V*1	DC-5V*2	DC-12V
Current Consumption	4.0A	1.0A	1.5A	0.1A	0.1A

<PL-6931(2 SLOT type)>

SLOT No.	Available Bus	Available Board Size	
		Standard Use	When using PL-FC210
SLOT1	ISA	163mm [6.42in.]x122mm [4.80in.](corresponding to Half size only)	
SLOT2	PCI or ISA	250mm[9.84in.]×122mm [4.80in.] (corresponding to 3Q size)	340mm [13.39in.] x 122mm [4.80in.] (corresponding to Full size)

Output Voltage	DC5V	DC12V	DC3.3V*1	DC-5V*2	DC-12V
Current Consumption	2.0A	0.5A	0.5A	0.1A	0.1A

*1 Only PCI SLOT supports this output voltage.

*2 Only ISA SLOT supports this output voltage.

NOTE

- Be sure to use the PCI/ISA board concerning of the heat goes up during operation.

2.2.2 PL-7930 Performance Specifications

■ Performance Specifications

Item		PL7930-T41/PL7931-T41		PL7930-T42/PL7931-T42
CPU		Intel®Celeron® M (1.3GHz)		Intel®Pentium® M (1.6GMHz), or Intel®Celeron® M (1.3GHz) (Embedded Optional Items)
Main Memory (S.O-DIMM)		PC2700 DDR 256MB,512MB,1GB (DIMM socket × 1 1GB (max.))		
L2 Cache Memory		512KB(Built in the CPU)		Intel®Pentium® M (1.6GMHz) : 1MB Intel®Celeron® M (1.3GHz) : 512KB (Built in the CPU)
Video Memory		32MB to 64MB (UMA method)		
Interface	Serial (RS232C: with FIFO)	COM1	D-SUB 9 pin plug MALE	
		COM2	D-SUB 9 pin plug MALE(5V/RI switching available)	
		COM3	D-SUB 9 pin plug MALE(5V/RI switching available)	
		COM4	D-SUB 9 pin plug MALE	
	USB	• USB2.0 (Support for HI SPEED 480M bps) • The number of ports: Front (1) / Side (2) • Power supply voltage: 5V DC ±5% • Output current: 500mA(max.) • The maximum communication distance: 5m		
	RAS	D-SUB 25PIN MALE • 5DATA IN, 4DATA OUT (Including Reset Input) • +12V OUT • +5V OUT		
	LAN × 2	IEEE802.3 10BASE-T/100BASE-TX Auto exchange SIDE		
	SOUND I/O	Sound I/O, Line-input, MIC-input • Connector: Mini Pin Jack		
	IDE	• Ultra ATA100 • HD SLOT 2SLOT (Primary, Secondary) Master and Slave settings are set by HDD*1 • CD SLOT (Concurrent use with a 2SLOT HDD available*2)		
	PCMCIA /CARD BUS	• Corresponding to Type II • Corresponding to CARD BUS (Excluding ZOOMED VIDEO, SOUND functions)		
	ISA	2SLOT/3SLOT		
	PCI	PCI Rev. 2.2 (33MHz) 1SLOT/3SLOT		
Clock Accuracy*3		± 180 sec. / month (fudge factor by the situation at normal temperature and power-off)		

*1 For the setting of Master/Slave, refer to the following section; [Chapter 3 Uninstalling / Installing HDD units / CF card units (page3-6)]

- Continued.

*2 When using the HDD SLOT1 (Expansion SLOT1) with the CD-ROM drive unit at the same time, be sure to set the HDD/CF card unit inside the Expansion SLOT1 as Master.

*3 The clock, RTC, built in the PL has fudge error. The range of the error will be between +300 to -300 sec. / month, depending on the PL's conditions such as lifetime usage or temperature difference. If you use the PL in a computer network that takes this error seriously, adjust the clock in regular intervals.

■ Display

Item	Specification
Type	15 inch XGA TFT color LCD
Resolution	1024 × 768 dots (XGA)
Dot pitch	W0.3mm [0.01in.] x H0.3mm [0.01in.]
Effective Display Area	W304.1mm [11.97in.] x H228.1mm [8.98in.]
Color/Shade level	260,000 colors
Backlight	CFL (Compact Fluorescent Lamp) (2-color-light system
Brightness control	4 levels of adjustment (Controlled by software)
Contrast Adjustment	None
View Angles	Horizontal Direction: 120 degrees, Vertical Direction: 100 degrees (Contrast ratio: CR is 10 or greater, or TYP value)
Display Service Life	50,000hrs.(MTTF) (Backlight display service life is not included.)
Backlight Service Life	50,000hrs. or more (at ambient temperature 25°C and continuous operation - a period until backlight brightness decreases to 50% or backlight starts to flicker)

■ Touch Panel

Item	Specification
Type	Resistive Film (analog)
Resolution	1024 x 1024
Service Life	1,000,000 times or more
Interface	USB or COM4

■ Expansion Slot

The following power current is the total output current when using all slots.

<PL-7930(4 SLOT type)>

SLOT No.	Available Bus	Available Board Size	
		Standard Use	When using PL-FC210
SLOT1	ISA	163mm [6.42in.]x122mm [4.80in.](corresponding to Half size only)	
SLOT2	PCI	250mm[9.84in.]×122mm [4.80in.] (corresponding to 3Q size)	340mm [13.39in.] x 122mm [4.80in.] (corresponding to Full size)
SLOT3	PCI or ISA		
SLOT4	PCI or ISA		

Output Voltage	DC5V	DC12V	DC3.3V*1	DC-5V*2	DC-12V
Current Consumption	4.0A	1.0A	1.5A	0.1A	0.1A

<PL-7931(2 SLOT type)>

SLOT No.	Available Bus	Available Board Size	
		Standard Use	When using PL-FC210
SLOT1	ISA	163mm [6.42in.]x122mm [4.80in.](corresponding to Half size only)	
SLOT2	PCI or ISA	250mm[9.84in.]×122mm [4.80in.] (corresponding to 3Q size)	340mm [13.39in.] x 122mm [4.80in.] (corresponding to Full size)

Output Voltage	DC5V	DC12V	DC3.3V*1	DC-5V*2	DC-12V
Current Consumption	2.0A	0.5A	0.5A	0.1A	0.1A

*1 Only PCI SLOT supports this output voltage.

*2 Only ISA SLOT supports this output voltage.

NOTE

- Be sure to use the PCI/ISA board concerning of the heat goes up during operation.

2.3 Interface Specifications

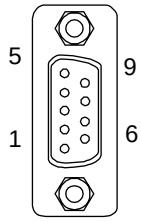
This section describes the specifications of each interface of the PL Series unit.

IMPORTANT

- The PL unit's serial port is not isolated. When the host (PLC) unit is also not isolated, be sure to connect the #5 SG (Signal Ground) terminal to reduce the risk of damaging the RS-232C circuit.
- Inside the PL unit, the SG (Signal Ground) and FG (Frame Ground) terminals are connected.
- If you connect an external device to the PL using the SG terminal, make sure that no short-circuit loops are formed in the system design proceedings.

2.3.1 Serial Interfaces (COM1/COM2/COM3/COM4)

This interface is used to connect an RS-232C (serial) cable. A D-sub 9pin plug connector is used.

Pin Arrangement	Pin No.	RS-232C		
		Signal Name	Direction	Meaning
	1	CD	Input	Carrier Detect
	2	RD(RXD)	Input	Receive Data
	3	SD(TXD)	Output	Send Data
	4	ER(DTR)	Output	Data Terminal Ready
	5	SG(GND)	-	Signal Ground
	6	DR(DSR)	Input	Data Set Ready
	7	RS(RTS)	Output	Request to Send
	8	CS(CTS)	Input	Send Available
	9	CI(RI)/5V	Input/Output	Called status display/+5V Output (Switching available*1)
	FG	FG	-	Frame Ground (Common with SG)

*1 Number 9 pin's [RI/+5V]changeover is good only for COM2 and COM3. The factory default setting is [RI]. For COM1 and COM4, [RI] can be available.

Use #4-40 (UNC) fixing clamps to fix the joint of the interspace.

IMPORTANT

- The ground (GND) is a signal ground. Make sure to connect it with the other unit's SG (Signal Ground) pin.
- The COM4 is not allowed to use when the communication procedure to the Touch Panel is applied to a COM port connecting.

■ RI/5V Changeover

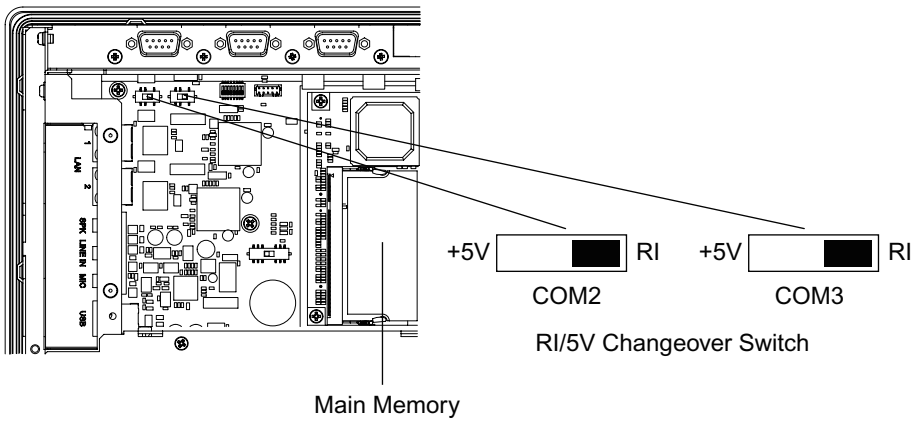
Switching [RI/5V] for COM2 and COM3 uses the RI/5V changeover switch - it is placed on the board inside of the rear maintenance cover of the PL. Refer to the following for more details of how to remove the fan cover or the memory slot cover.

SEE→ *3.1.1 Uninstalling the Rear Maintenance Cover (page3-2)*

IMPORTANT

- When you switch the RI/5V changeover switch, you must turn off the power supply of the PL. Otherwise, it will cause malfunction.
- Prior to the switching action, confirm the interface specification for the other side of the connection. Otherwise, it will cause malfunction.

<Magnified image>



The factory setting of both ports is [RI].

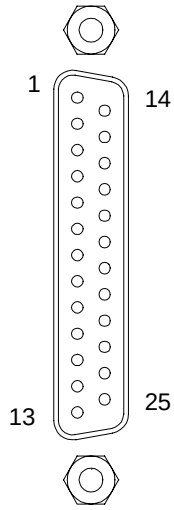
2.3.2 RAS Interface

Specification for D-sub 25pin Male is listed below.

NOTE

- Correspond with the DipSW setting for using the connector.

SEE → ■ *DipSW (page1-4)*

Pin Arrangement	Pin No.	Signal Name	Meaning
	1	GND	Ground
	2	+5V	Output Current : Lower than or equal to 100mA (with a total of 2 pin and 15 pin) Output Voltage : 5V±5%
	3	+12V	Output Current : Lower than or equal to 100mA Output Voltage : 12V±5%
	4	NC	-
	5	RST(+)	Reset Input (+)
	6	DIN0(+)	Data Input 0 (+)
	7	DOUT2 (-) (UPS Shutdown(-))	Data Output 2 (-) (UPS Shutdown(-))
	8	DOUT2 (+) (UPS Shutdown(+))	Data Output 2 (+)(UPS Shutdown(+))
	9	DOUT0 (-)	Data Output 0 (-)
	10	DOUT0 (+)	Data Output 0 (+)
	11	RST (-)	Reset Input (-)
	12	DIN0 (-)	Data Input 0 (-)
	13	DIN1 (+)	Data Input 1 (+)
	14	GND	Ground
	15	+5V	Output Current : Lower than or equal to 100mA (with a total of 2 pin and 15 pin) Output Voltage : 5V±5%
	16	DIN2 (+)	Data Input 2 (+)
	17	DIN2 (-)	Data Input 2 (-)
	18	DIN3 (+)	Data Input 3 (+)
	19	DOUT1(-)	Data Output 1(-)
	20	DOUT1(+)	Data Output 1(+)
	21	DOUT3(-)	Data Output 3(-)
	22	DOUT3(+)	Data Output 3(+)
	23	DIN3 (-)	Data Input 3(-)
	24	DIN1 (-)	Data Input 1(-)
	25	NC	-

Use #4-40 (UNC) fixing clamps to fix the joint of the interspace.

IMPORTANT

- Be sure to use only the rated voltage level when using the No. 2 [+5V] and No. 3[12V] for external power output. Failure to do so can lead to a unit malfunction or accident.

SEE → *7.1 RAS Features (page7-2)*

■ Input (DIN0, 1, 2, 3 and RST)

INPUT VOLTAGE RANGE	DC12V to 24V
INPUT CURRENT	Lower than or equal to10mA
INNER RESISTOR	3.6k Ω 1/10W
INSULATION	Greater than or equal to 500V
SINK SOURCE INPUT	Correspondence

■ Output (DOUT0, 1, 2, 3)

OUTPUT VOLTAGE RANGE	DC24V
OUTPUT CURRENT	Lower than or equal to 120mA
INSULATION	Greater than or equal to 500V
PROTECTION DIODE	Equipped

NOTE

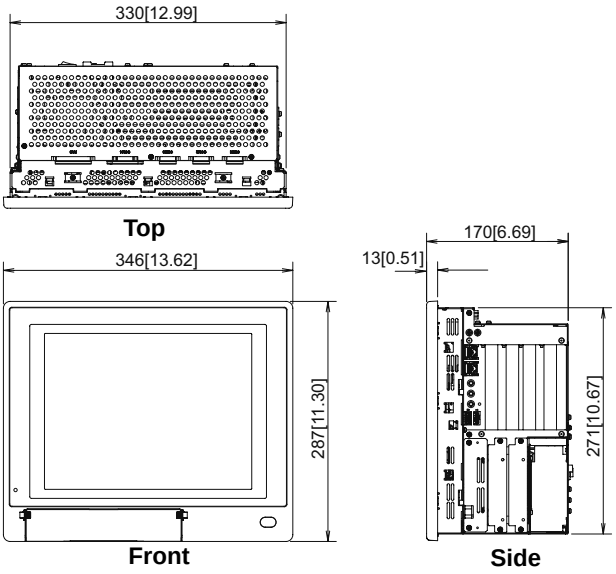
- For further details of the circuit diagram, refer to the following.

SEE→ *7.1.1 RAS Features (page7-2)*

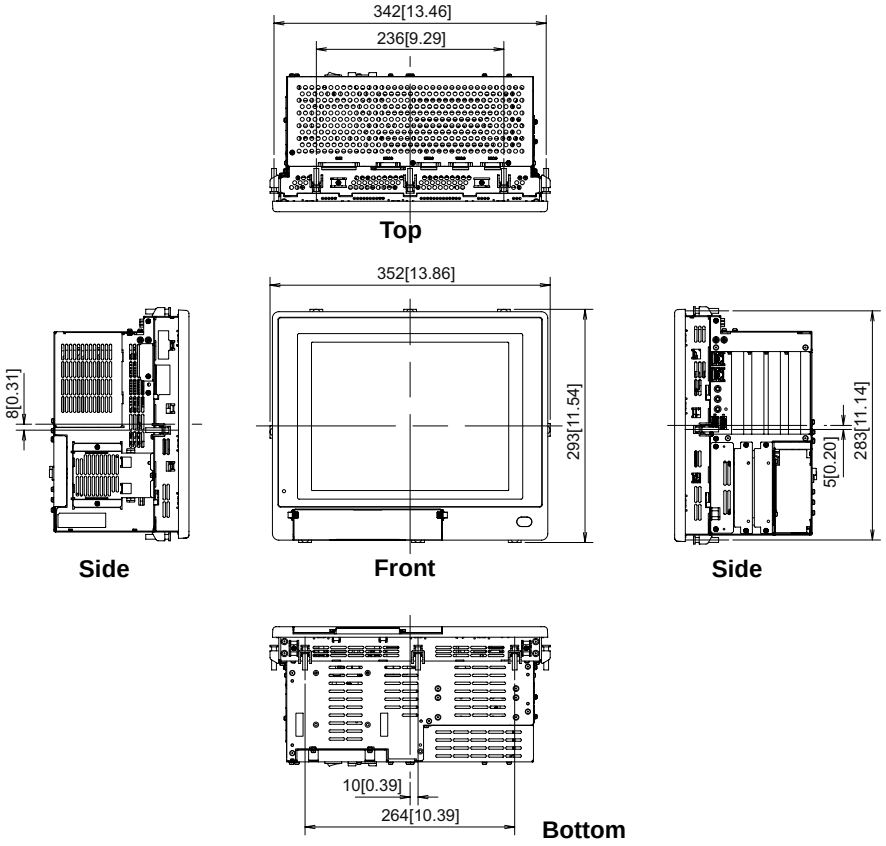
2.4 Dimensions

2.4.1 PL-6930 External Dimensions

Unit: mm [in.]

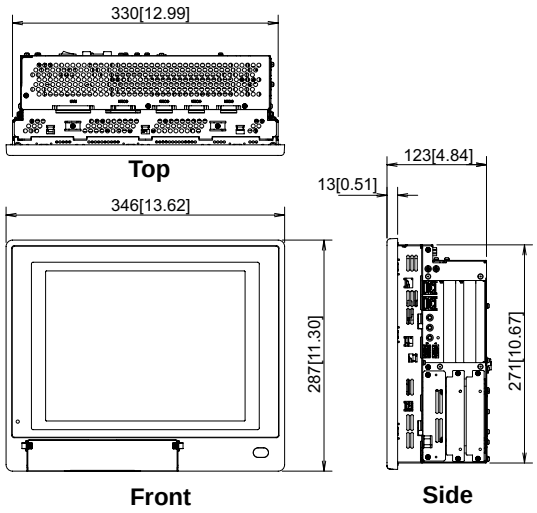


■ Dimensions with installation fasteners

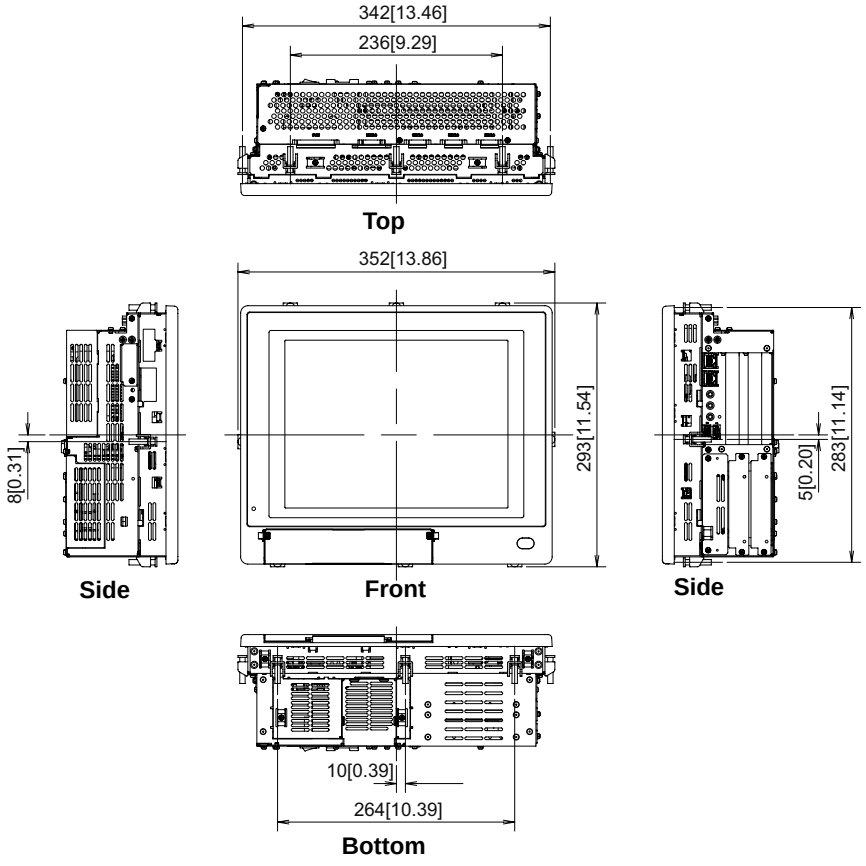


2.4.2 PL-6931 External Dimensions

Unit: mm [in.]

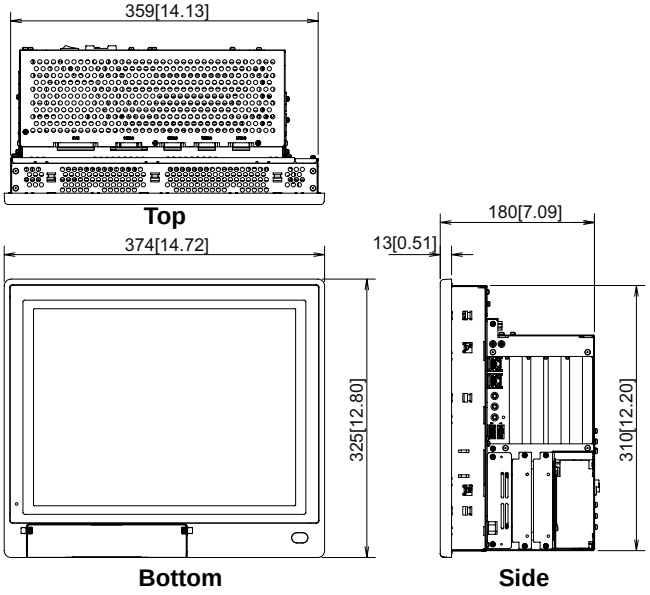


■ Dimensions with installation fasteners

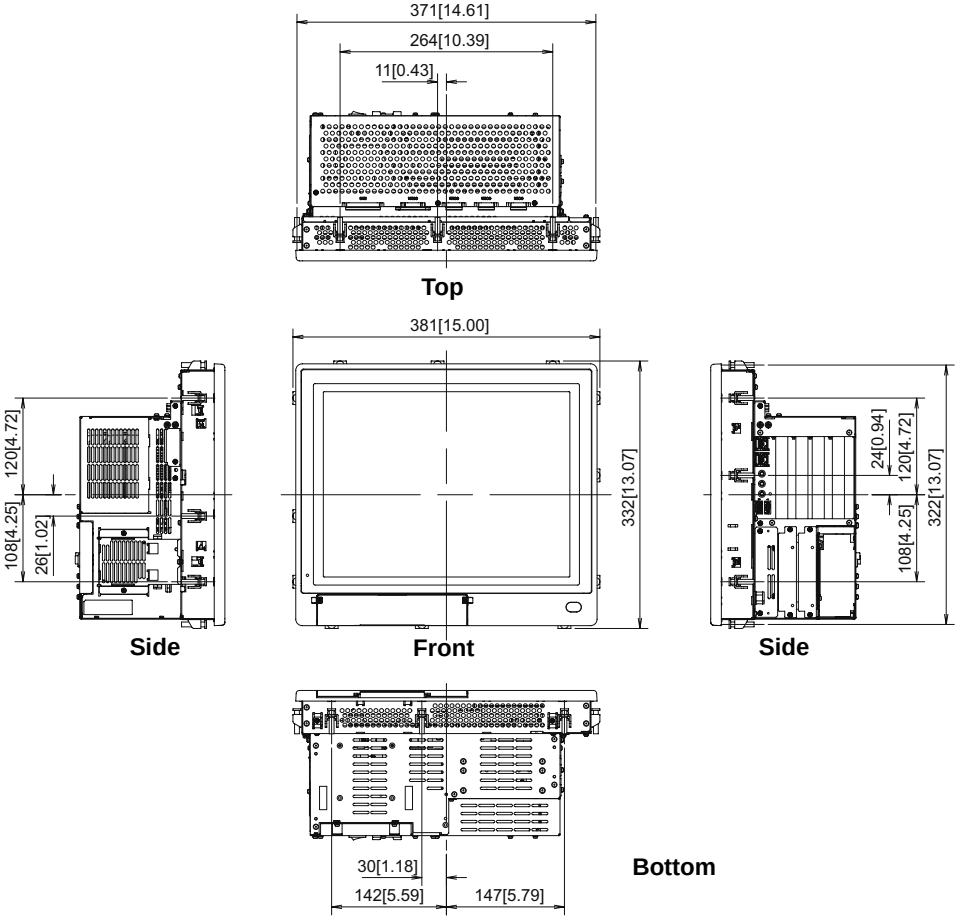


2.4.3 PL-7930 External Dimensions

Unit: mm [in.]

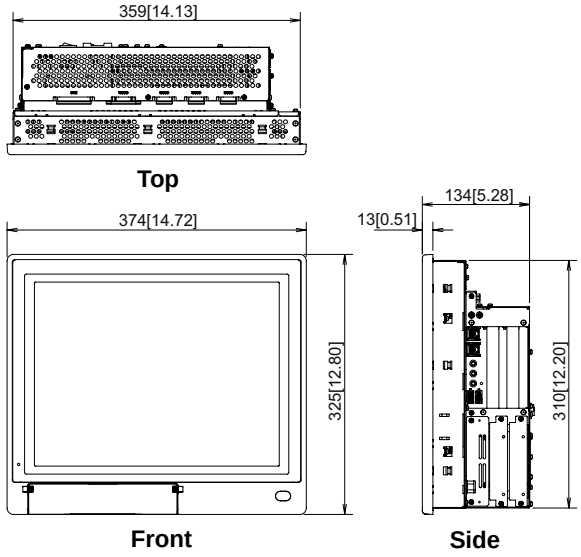


■ Dimensions with installation fasteners

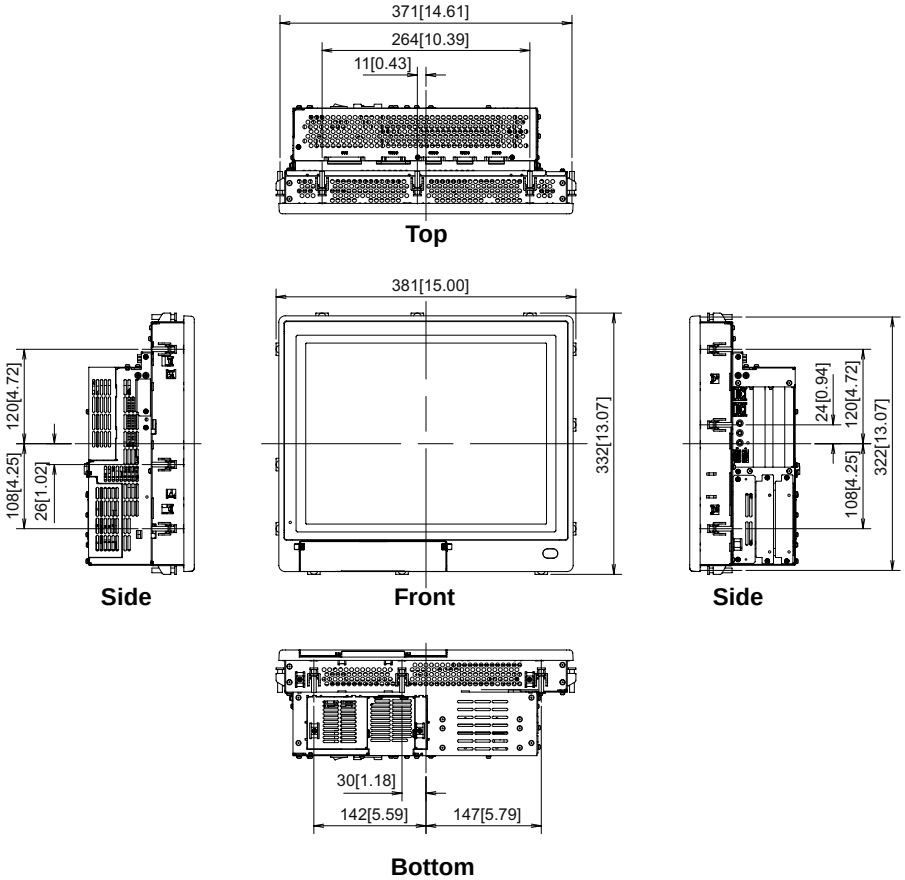


2.4.4 PL-7931 External Dimensions

Unit: mm [in.]

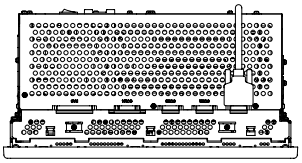


■ Dimensions with installation fasteners



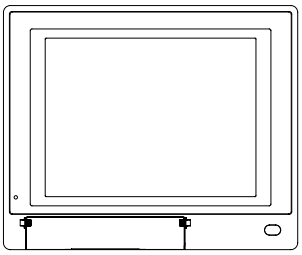
2.4.5 Dimensions attached RS-232C/RS-485 exchangeable unit

■ PL-6930

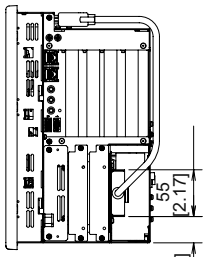


Top

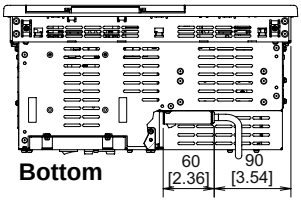
Unit: mm [in.]
(Except for protrudent objects and cable parts)



Front

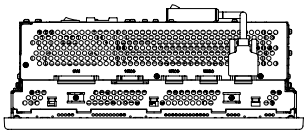


Side

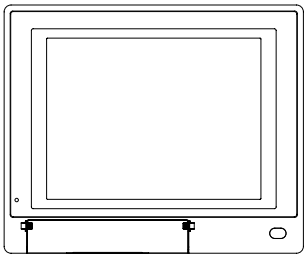


Bottom

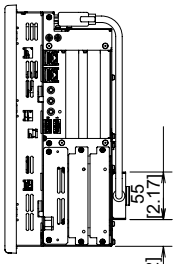
■ PL-6931



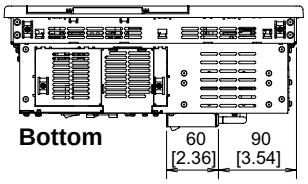
Top



Front



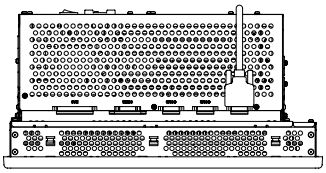
Side



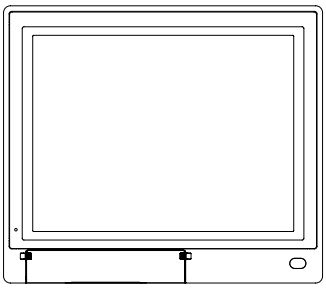
Bottom

■ PL-7930

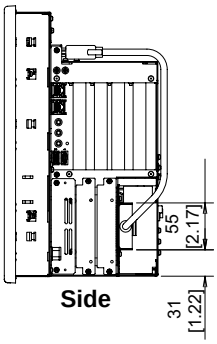
Unit: mm [in.]
(Except for protrudent objects and cable parts)



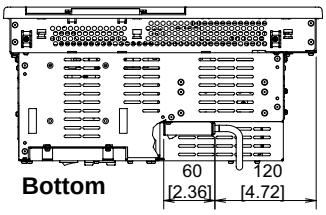
Top



Front

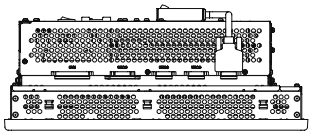


Side

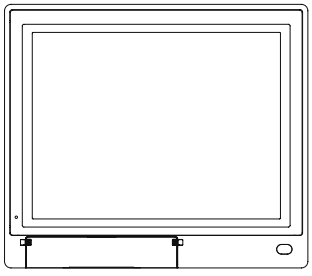


Bottom

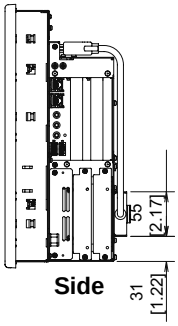
■ PL-7931



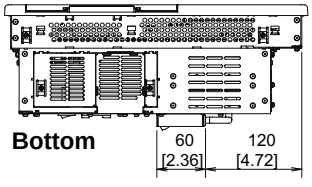
Top



Front



Side



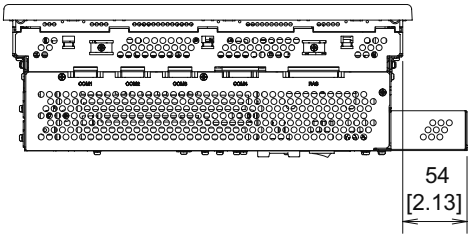
Bottom

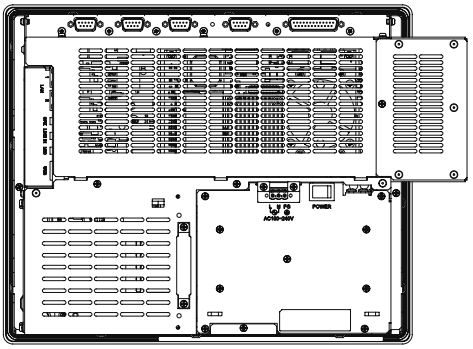
2.4.6 Dimensions with a full-sized board cover

■ PL-6930 series

The figure shows a PL-6931 model.

Unit: mm [in.]

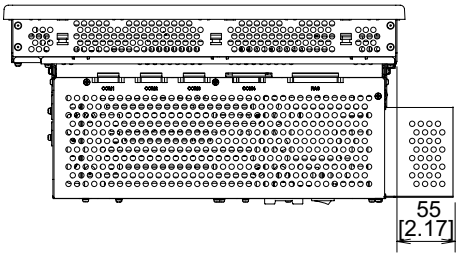


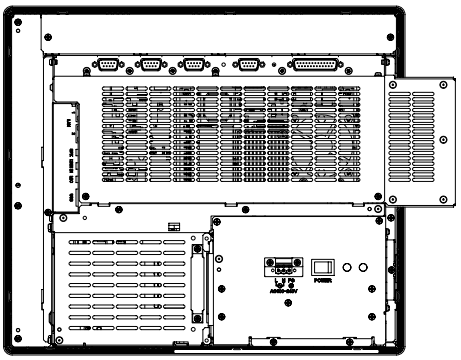


■ PL-7930 series

The figure shows a PL-7930 model.

Unit: mm [in.]





IMPORTANT

- Prior to installing a full-sized board and the PL's full-sized cover (PL-FC200/PL-FC210), be sure that the PL is installed in its attachment panel/cabinet. Due to dimension differences, a full-sized expansion board and PL's full-sized cover can not be attached prior to installing the PL into a panel.
- When using a full sized expansion board, be sure to check its dimensions and shape, since they will affect the board's environment specifications, such as for vibration, etc.

NOTE

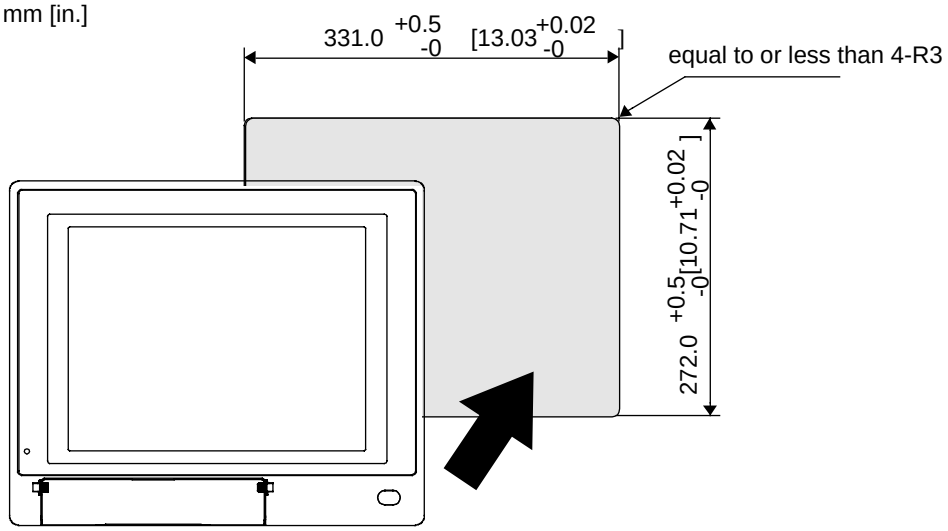
- There are two types of full-sized covers - one for 4-slot units (PL-6930/7930) and one for 2-slot units (PL-6931/7931). Use an appropriate cover.

SEE → *1.3 Accessories (page1-7)*

2.4.7 Panel Cut Dimensions

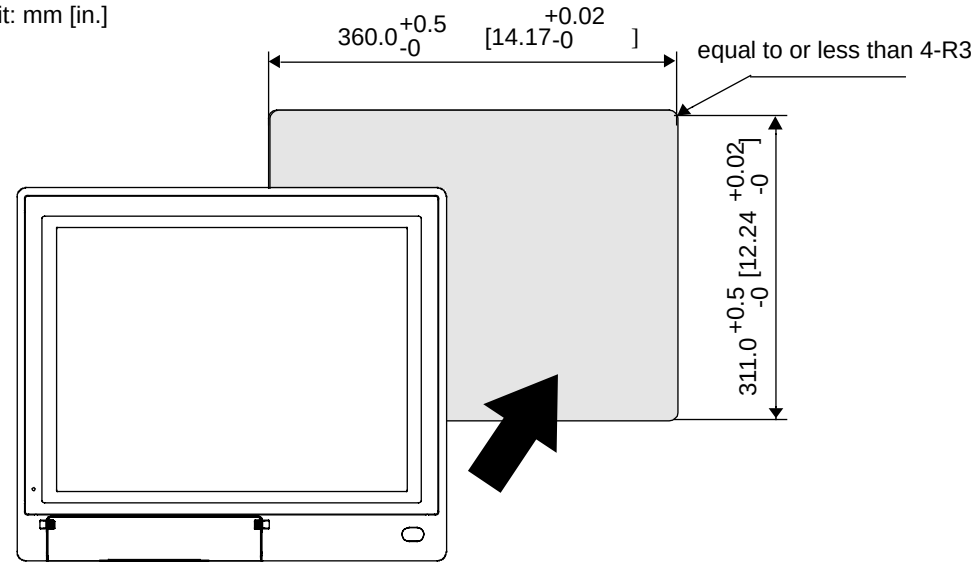
■ PL-6930 Series

Unit: mm [in.]



■ PL-7930 Series

Unit: mm [in.]

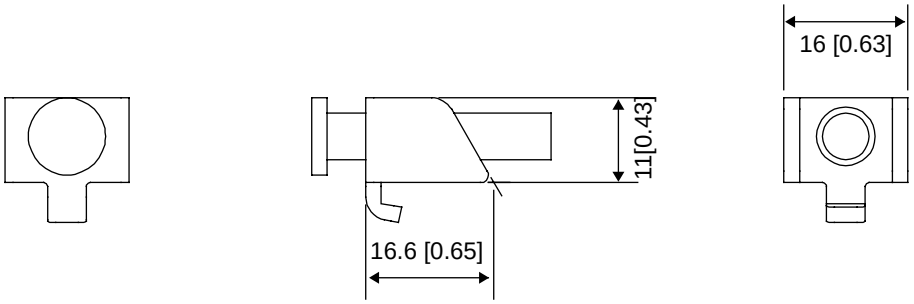


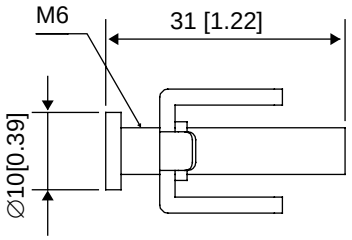
IMPORTANT

- The thickness of the installation panel is from 1.6mm[0.06in.] to 10 mm[0.39in.].
- Depending on the shape of the PL's panel, it may need some reinforcements. Especially, if high levels of vibration are expected and the PL's installation surface (i.e. an operation panel's door, etc.) can move (i.e.open or close) due consideration should be given to the PL's weight.
- To insure that the PL's water resistance is maintained, be sure to install the PL into a panel that is flat and free of scratches or dents.
- Be sure all installation tolerances are maintained to prevent the unit from falling out of its installation panel.

2.4.8 Installation Fasteners

Unit: mm [in.]





Memo

3 Peripheral Device Installation

1. Installing optional units / expansion boards
2. Installing / Uninstalling PCMCIA Cards
3. Installing USB Cable Clamp

This chapter shows how to install the unit and expansion board to the PL, and to install peripheral device to the PL.

3.1 Installing optional units / expansion boards

A wide variety of optional units, DIM module, CF cards, manufactured by Digital Electronics Corporation and commercial Expansion boards (PCI/ISA bus compatible board) can be used with the PL. When installing those optional units, refer to the “Installation Guide” of each unit.

⚠ WARNING

Be sure to confirm that power is not supplied to the PL unit before installing or removing any optional units, DIM module, CF cards, or Expansion boards (PCI/ISA boards). Failure to do so can result in an electric shock.

IMPORTANT

- Use a screwdriver to loosen and tighten the screws. Be sure not to tighten the screws too much. Excessive force to the unit may cause damage.
- When removing or replacing screws, be careful that they do not fall inside the PL unit's chassis.
- When the PL is in Soft OFF state, its screen looks “OFF” but some part of the PL’s circuit still carries electricity. Make sure that no power cable has been plugged to the PL unit at installation.

3.1.1 Uninstalling the Rear Maintenance Cover

Follow the steps given below when uninstalling the rear maintenance cover.

IMPORTANT

- The cover is made of aluminum so it is easy to bend or change its shape. Pay special attention to the uninstalling operation.

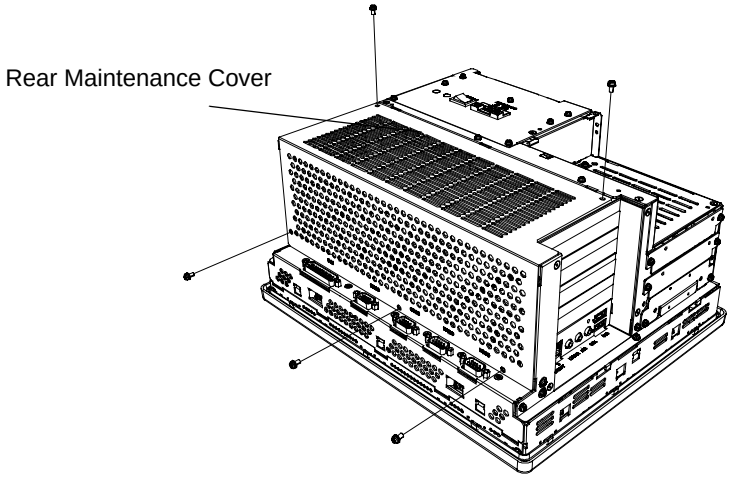
■PL-6930/PL-7930 (4slot-type unit)

IMPORTANT

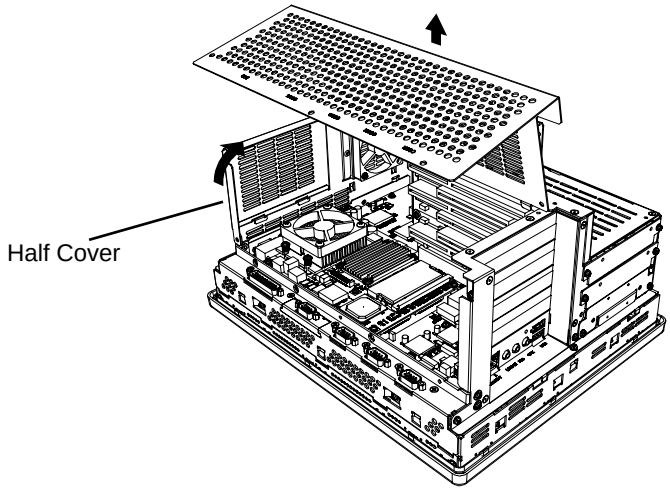
- Make sure to remove the maintenance cover first, and then the half cover.

(1) Turn off the power and uninstall the power cable. Place the PL unit on a horizontal place as its screen side could face to the bottom.

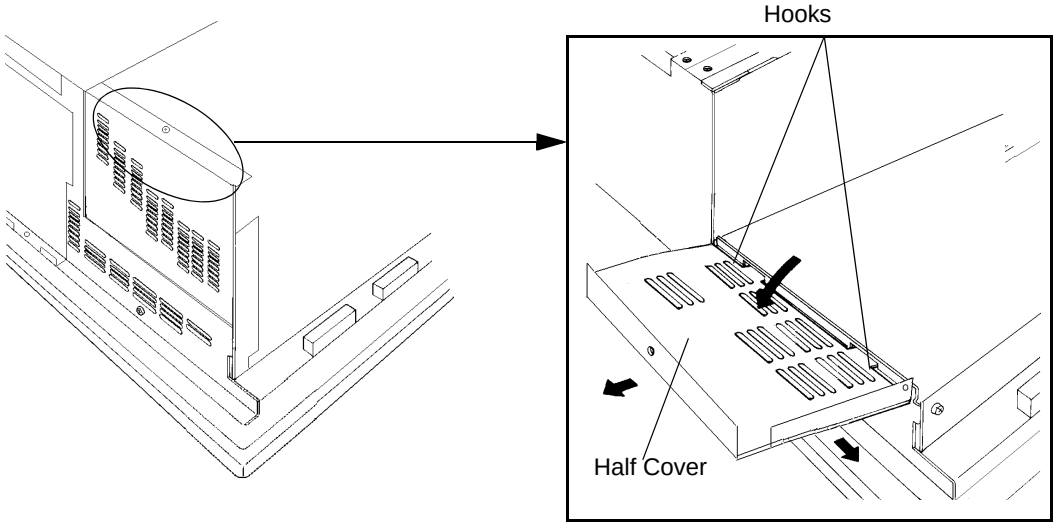
(2) Unscrew the five(5) attachment screws of the rear maintenance cover in place.



(3) Remove the rear maintenance cover.



(4) Lift up slightly the hooks of the half cover and remove it from the unit.

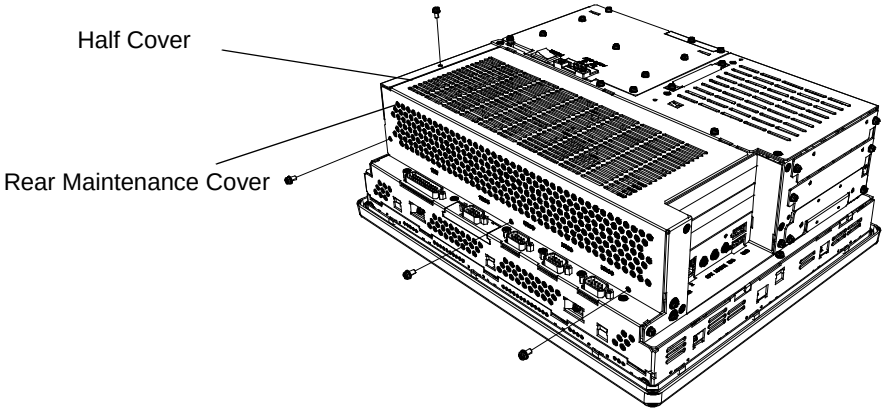


■PL-6931/PL-7931 (2slot-type unit)

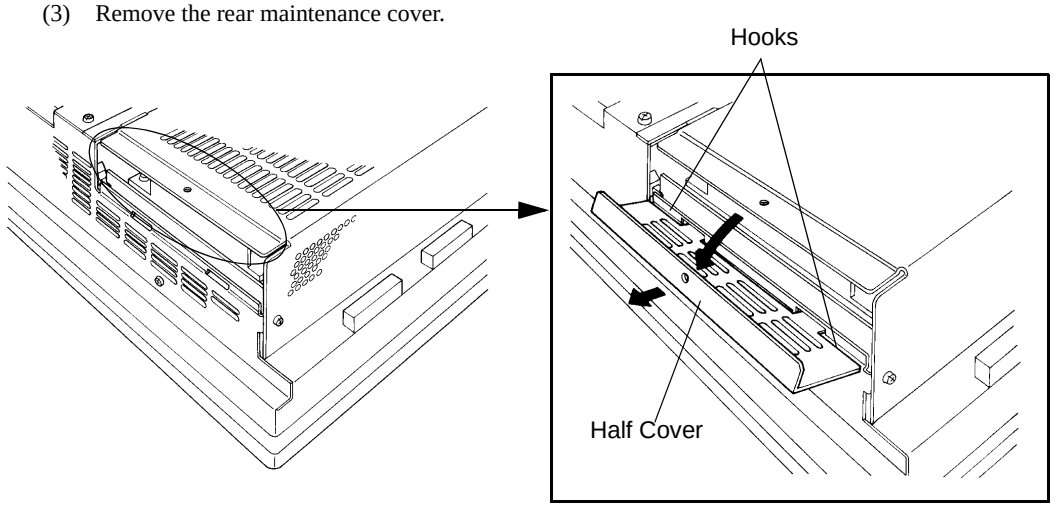
IMPORTANT • Make sure to remove the half cover first, and then the maintenance cover.

(1) Turn off the power and uninstall the power cable. Place the PL unit on a horizontal place as its screen side could face to the bottom.

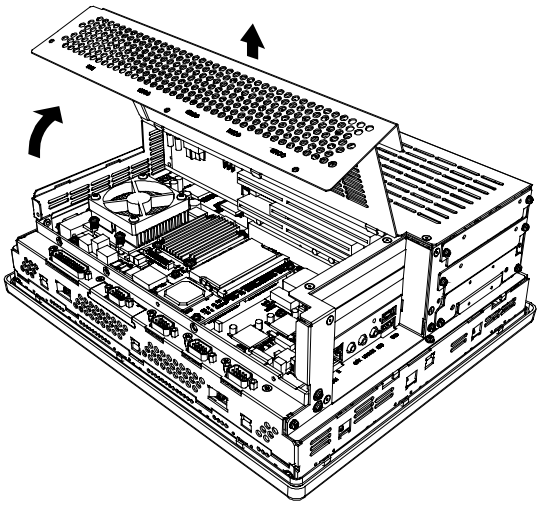
(2) Unscrew the four(4) attachment screws of the rear maintenance cover and the half cover in place.



(3) Remove the rear maintenance cover.



(4) Lift up slightly the hooks of the half cover and remove it from the unit.



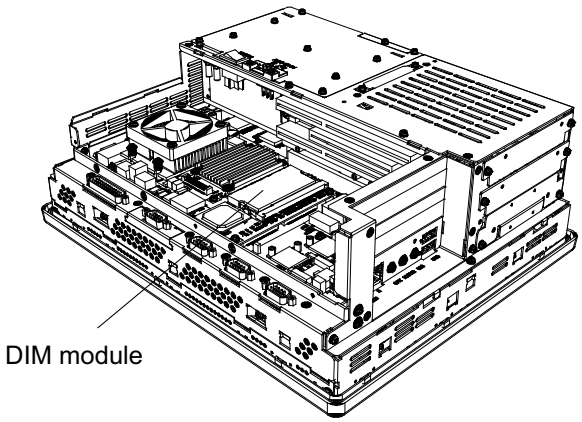
3.1.2 Installing the Main Memory

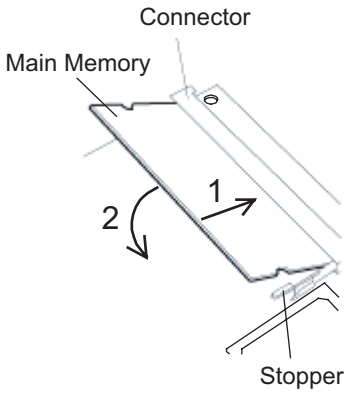
IMPORTANT
- Since DIM module sockets are easy to break, be sure to install the DIM module
- very carefully.

(1) Uninstall the rear maintenance cover and the half cover.

SEE → *3.1.1 Uninstalling the Rear Maintenance Cover (page3-2)*

(2) Install the main memory shown as the following figures. Put the DIM module in the connector at a tilt then push it all the way. Next, push it down until it can engage tightly with the stopper.





(3) Return both of the rear maintenance cover and half cover to the unit. Screw the screws to install them on the unit. The requirement torque force is 0.5N•m to 0.6N•m.

3.1.3 Uninstalling / Installing HDD units / CF card units

IMPORTANT

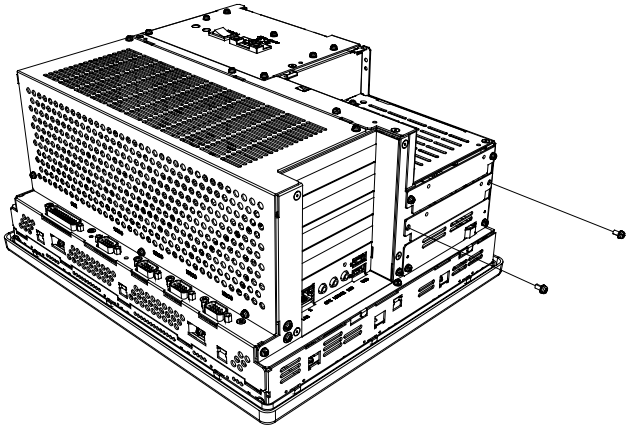
- The HDD units and CF card units are precision instruments. Be sure not to jar or shake them unnecessarily. Read through the Installation Guide for each unit when using.

NOTE

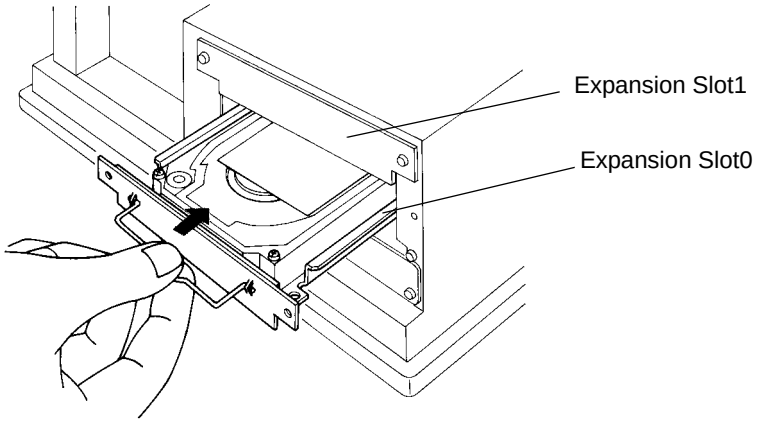
- When installing/uninstalling the CF cards, follow the steps as the following procedures (Procedures of HDD unit).

(1) Turn off the power switch of the PL. Remove the power cable from the unit.

(2) Remove the Expansion Slot 0 cover's two (2) attachment screws.



(3) Grasp the HDD unit's handle and insert it slowly into the PL unit along with the guideways. Be sure you do not damage the unit.



(4) Fix the unit in place with its two(2) attachment screws.

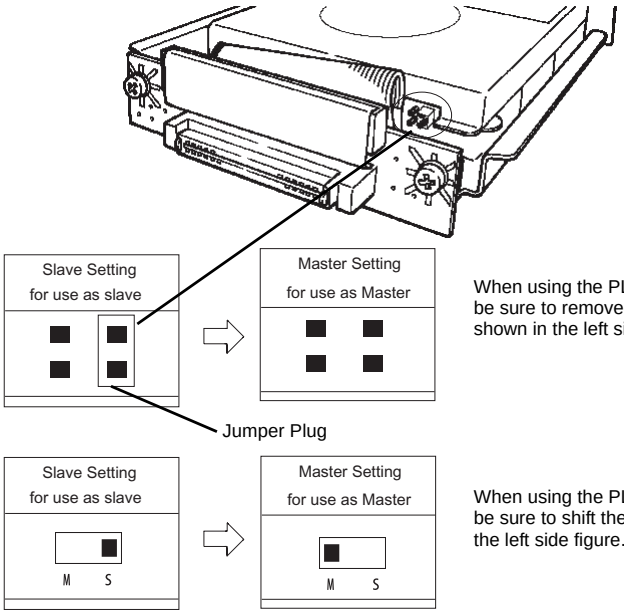
NOTE

- Do as same as above when installing/uninstalling to the Expansion Slot1 card units.

IMPORTANT

- Be sure to use the HDD/CF card unit as Master setting for PL-X930 Series units.
- If you want to use the HDD/CF card unit in the “Expansion Slot1” together with the CD-ROM drive unit, the setting of the HDD/CF card unit must be “Master” (as the first disk). To do failure so, it may cause malfunction.

<PL-HD240>



When using the PL-HD240 as a Master, be sure to remove the jumper plug, as shown in the left side figure.

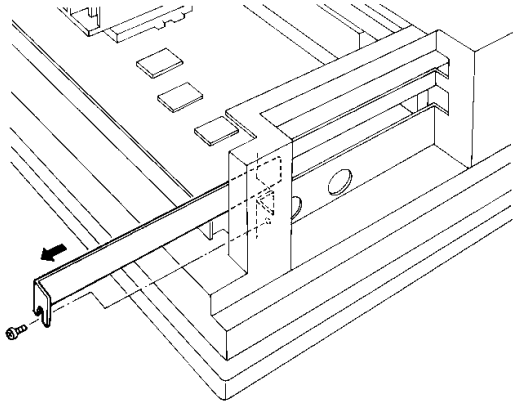
When using the PL-CF200 as a Master, be sure to shift the switch, as shown in the left side figure.

3.1.4 Installing the Expansion board (PCI/ISA)

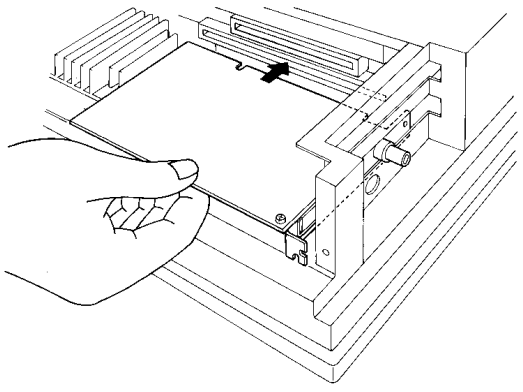
(1) Uninstall the rear maintenance cover of the PL unit.

SEE → *3.1.1 Uninstalling the Rear Maintenance Cover (page3-2)*

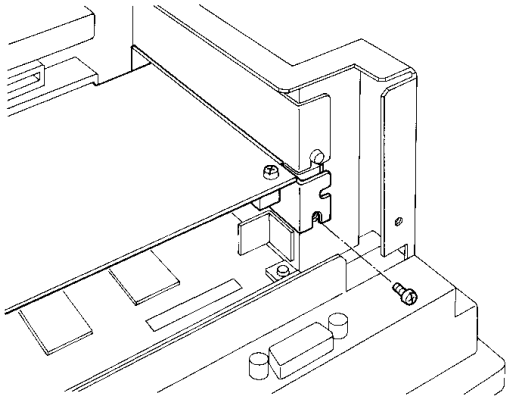
(2) Unscrew the one screw of the blank panel then uninstall the panel.



(3) Remove the dust cover from the expansion slot, and insert the expansion board there.



(4) Fix the steel plate by the attachment of the expansion board.



(5) Return the rear maintenance cover and the half cover to the unit then screw the screw to fix.

3.1.5 Connecting a CD-ROM drive unit

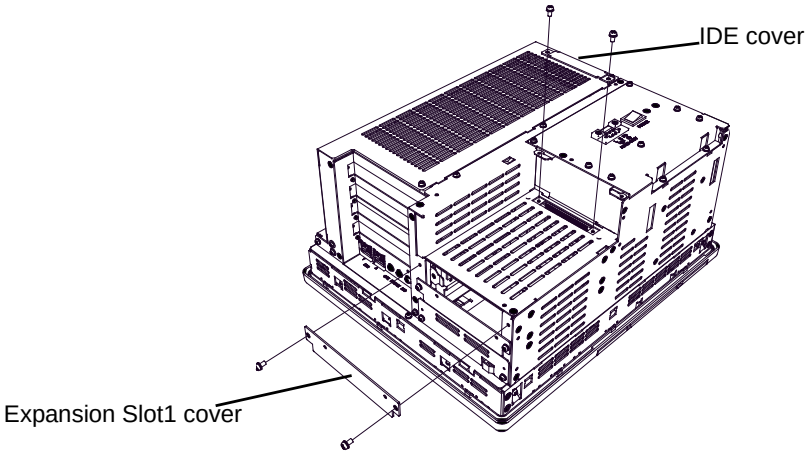
IMPORTANT

- If you want to use the HDD/CF card unit in the “Expansion Slot1” together with the CD-ROM drive unit, the setting of the HDD/CF card unit must be “Master” (as the first disk). To do failure so, it may cause malfunction. Please refer to the Chapter 3 Uninstalling / Installing HDD units / CF card units (page3-6)

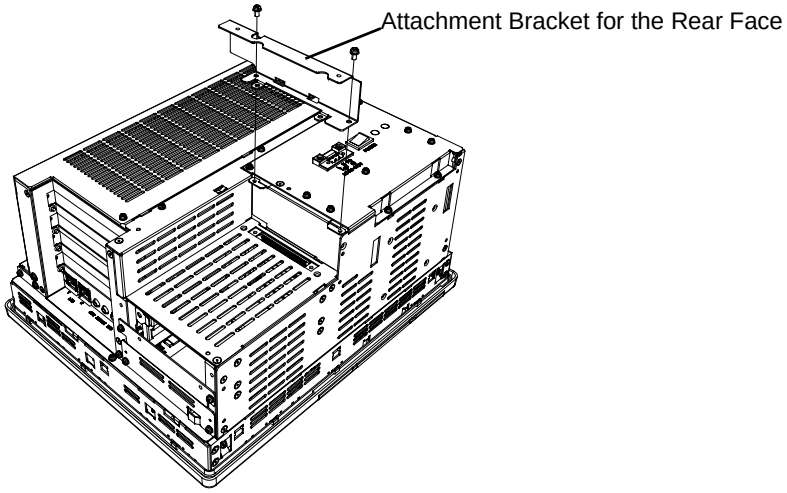
■PL-6930 / PL-7930(4-Slot Type)

(1) Unscrew the two(2) attachment screws on the IDE cover, and then remove the cover.

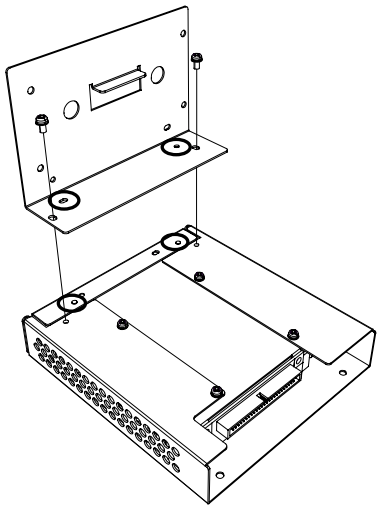
(2) Unscrew two (2) attachment screws of the Expansion Slot1 and then remove the cover.



(3) Secure the attachment bracket for the rear face to the PL unit using the two (2) attachment screws. The torque should be 0.5 to 0.6N•m.



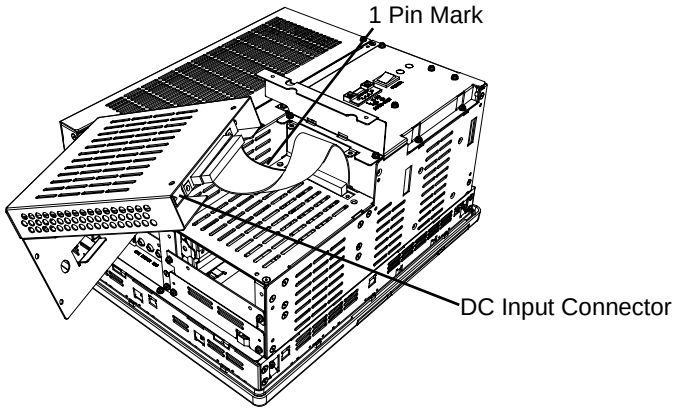
(4) Secure the front face fastener to the bottom of the CD-ROM unit using the two (2) attachment screws. The torque should be 0.5 to 0.6N•m.



NOTE

- Insert firmly both sides of parts, which are marked with thick circles (salients and holes) on the above.

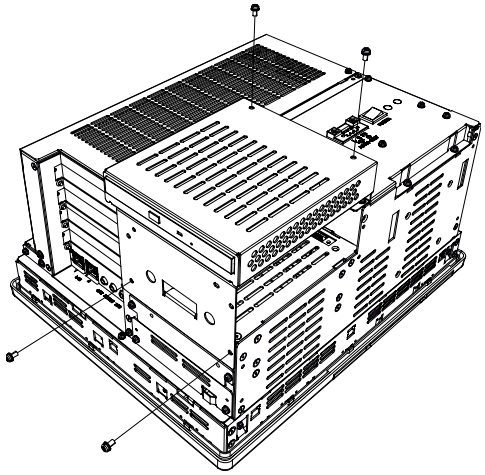
(5) Connect the CD unit to the PL unit via the connection cable, folded the cable over, along the diagonal line. Be sure to confirm that the Cable's #1 pin mark and the connector are correctly aligned. Do not connect anything to the DC INPUT Connector.



IMPORTANT

- Make sure that the cable is securely plugged into the connector before you turn on the power switch.
- Refer to the following drawings to confirm that the connection cable is securely attached to both connectors. Be sure to check both connectors before turning the PL ON, since incorrect attachment of the connectors can cause equipment damage.

(6) Secure the CD-ROM unit to the PL unit using the four (4) attachment screws. The torque should be 0.5 to 0.6N•m. Place the cable in the space between the PSS-CD01 and the PL unit.



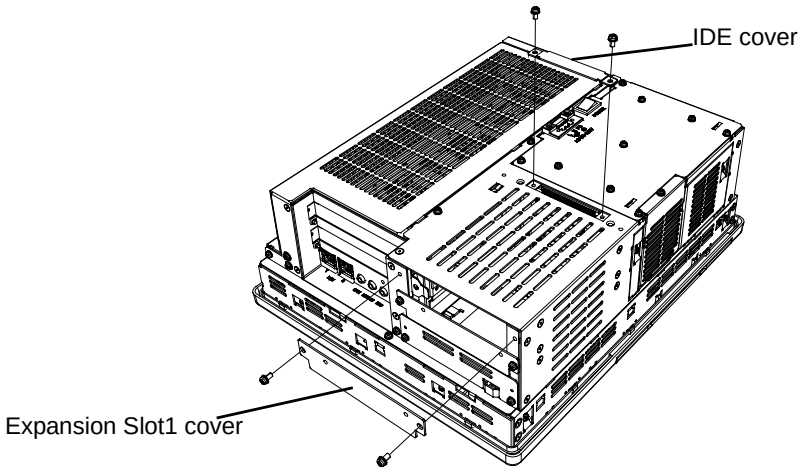
IMPORTANT

- When using the HDD/CF Card unit within the Expansion Slot 1 for PL-X930 Series, Step (6) is not required. PSS-CD01 should be used, unattached on the rear of PL unit.

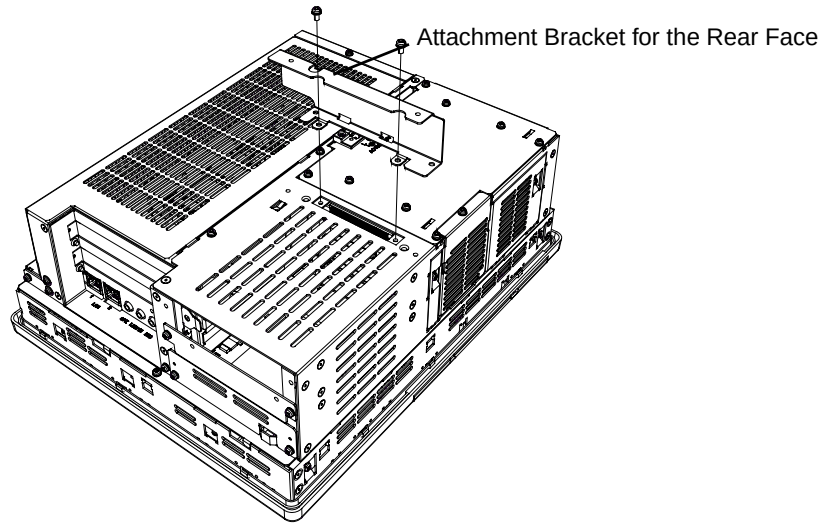
■PL-6931 / PL-7931(2-Slot Type)

(1) Unscrew the two(2) attachment screws on the IDE cover, and then remove the cover.

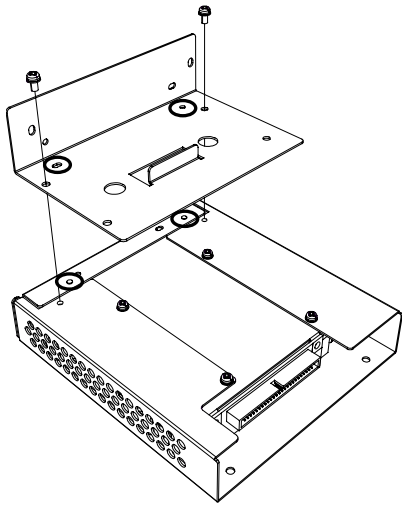
(2) Unscrew two (2) attachment screws of the Expansion Slot1 cover and then remove the cover



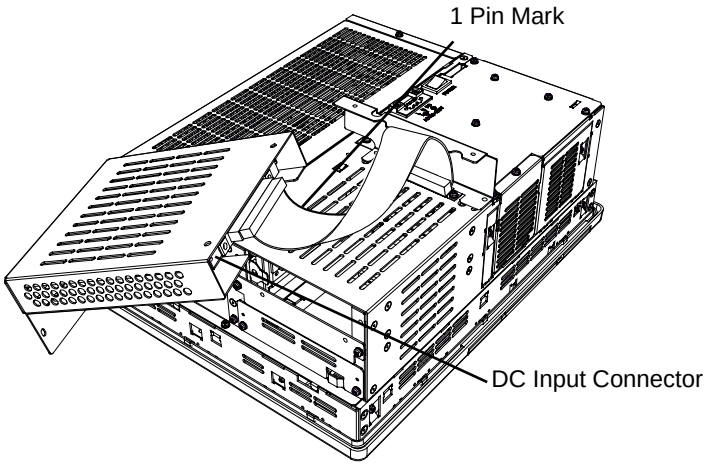
(3) Secure the attachment bracket for the rear face to the PL unit using the two (2) attachment screws. The torque should be 0.5 to 0.6N•m.



(4) Secure the front face fastener to the bottom of the CD-ROM unit using the two (2) attachment screws. The torque should be 0.5 to 0.6N•m.



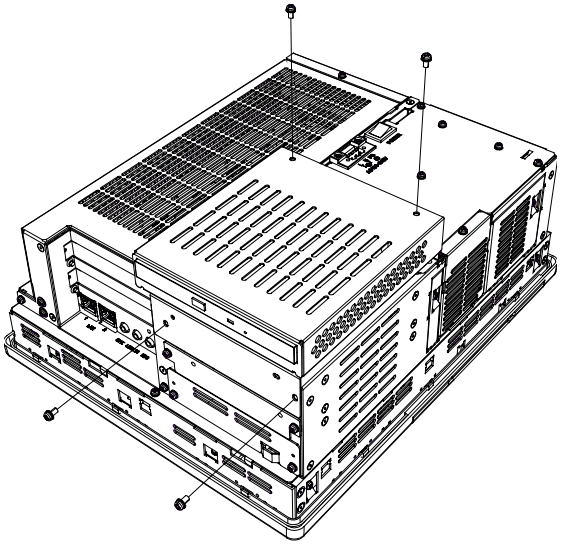
(5) Connect the CD unit to the PL unit via the connection cable, folded the cable over, along the diagonal line. Be sure to confirm that the Cable's #1 pin mark and the connector are correctly aligned. Do not anything connect to the DC INPUT Connector.



IMPORTANT

- Make sure that the cable is securely plugged into the connector before you turn on the power switch.
- Refer to the following drawings to confirm that the connection cable is securely attached to both connectors. Be sure to check both connectors before turning the PL ON, since incorrect attachment of the connectors can cause equipment damage.

(6) Secure the CD-ROM to the PL unit using the four (4) attachment screws. The torque should be 0.5 to 0.6N•m. Place the cable in the space between the PSS-CD01 and the PL unit.



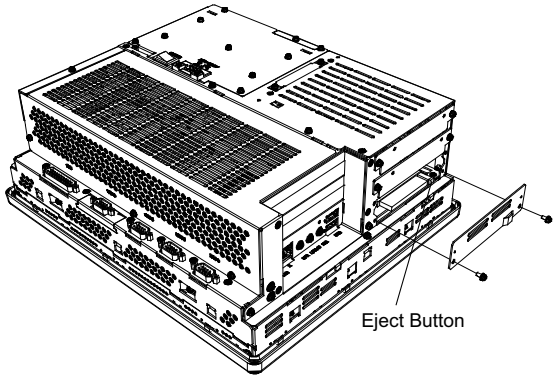
IMPORTANT

- When using the HDD/CF Card unit within the Expansion Slot 1 for PL-X931 Series, Step (6) is not required. PSS-CD01 should be used, unattached on the rear of PL unit.

3.2 Installing / Uninstalling PCMCIA Cards

PL series accept commercial PC cards on the market.

(1) Unscrew the two(2) screws on the cover of the side of the PCMCIA, and then remove the cover.



(2) To remove the PC card, press the eject button twice. (When you press the button for the first time, the tip of the eject button pokes out. The PC card is pushed out at the second time.)

(3) Return the PCMCIA cover to the unit, and then drive the screws to fix the cover.

IMPORTANT

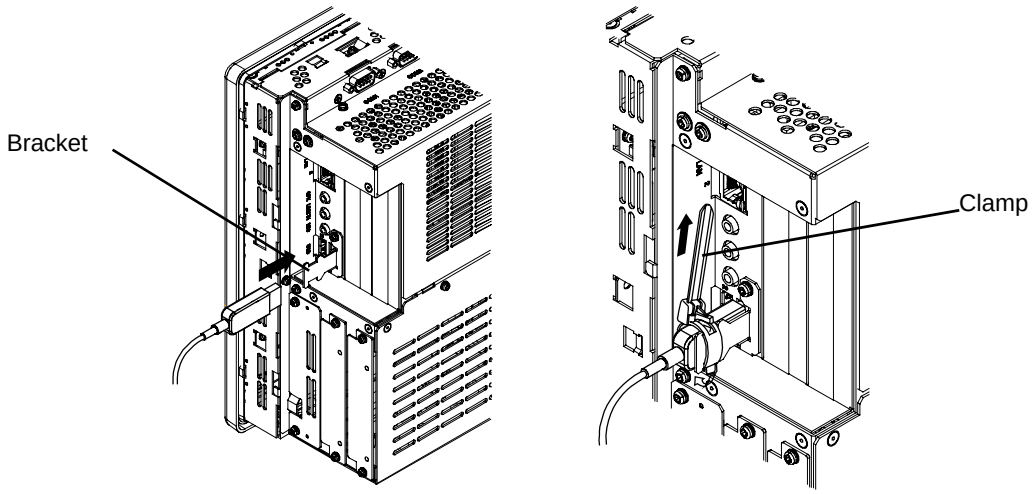
- If your PC card is a cable attachment type, you should consider an effective prevention measure that the installing of the cable does not drop out of the clamp. The cable fixation may not be stable if there is vibration.
- When energizing to the PL, be sure to stop the PL unit PC Card's driver prior to removing the PC Card. A failure to stop this driver may result in damage to either the PC Card, the PC Card's data, or may cause the Windows program to hang up. For information on the procedure for stopping the PC Card's driver, refer to your OS' User Manual.

3.3 Installing USB Cable Clamp

In the use of USB connection devices, installing a gasket and clamp makes the USB cable firmly fasten. This installation prevents the USB plug from falling out of the unit.

(1) Install the bracket in the USB interface side of the unit.

(2) Plug the USB cable into the unit. Tie up the cable and clamp to fix firmly.



NOTE • If you fix two USB cables together, tie them up with one USB clamp.

4 Installation and Wiring

1. Installing the PL unit
2. Wiring

This chapter shows how to install the PL unit and to care the wiring method.

4.1 Installing the PL unit

This section describes the procedures and precautions for installing the PL unit.

4.1.1 Installation Procedures

Follow the steps given below when installing the PL.

■ Check the Installation Gasket's Seating

It is strongly recommended that you use the installation gasket, since it absorbs vibration in addition to repelling water.

For the procedure for attaching the installation gasket, refer to the following.

SEE→ *8.4 Replacing the Installation Gasket (page8-5)*

IMPORTANT

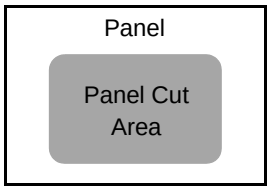
- Before installing the PL into a cabinet or panel, check that the installation gasket is securely attached to the unit.
- A gasket which has been used for a long period of time may have scratches or dirt on it, and could have lost much of its dust and drip resistance. Be sure to change the gasket periodically as the scratches or dirt on the gasket becomes visible.

■ Creating a Panel Cut

Create the correct sized opening required to install the PL, using the installation dimensions given.

The installation gasket and the installation fasteners are required when installing the PL.

SEE→ *2.4.7 Panel Cut Dimensions (page2-24)*

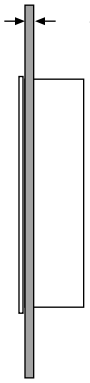


NOTE

- Check that the installation panel or cabinet's surface is flat, in good condition and has no jagged edges. Also, if desired, metal reinforcing strips can be attached to the inside of the panel, near the Panel Cut, to increase the panel's strength.

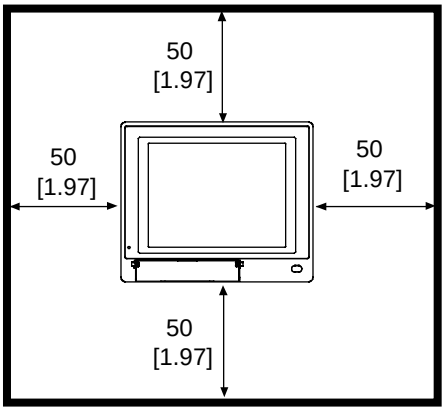
IMPORTANT

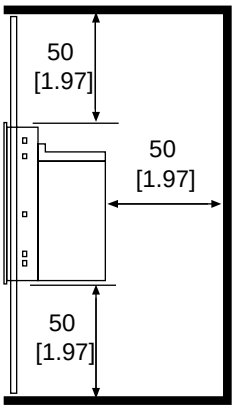
- Panel thickness should be from 1.6mm [0.06 in.] to 10.0mm [0.29 in.]. Decide the panel's thickness based on the level of panel strength required.



- For easier maintenance, operation, and improved ventilation, be sure to install the PL at least 50 mm [1.97 in.] away from adjacent structures and other equipment.

Unit: mm [in.]

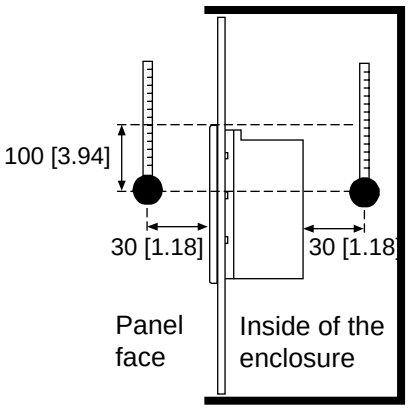




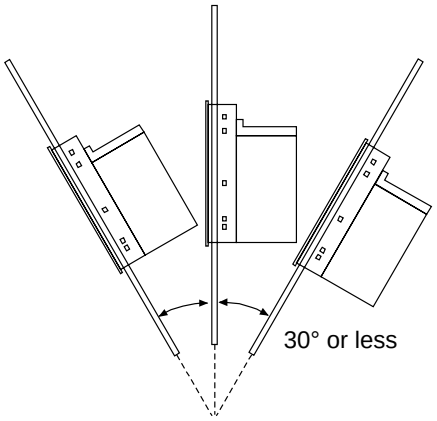
IMPORTANT

- Be sure that the ambient operation temperature and the ambient humidity are within their designated ranges. When installing the PL on the panel of a cabinet or enclosure, “Ambient operation temperature” indicates both the panel face and cabinet or enclosure’s internal temperature.

Unit: mm [in.]



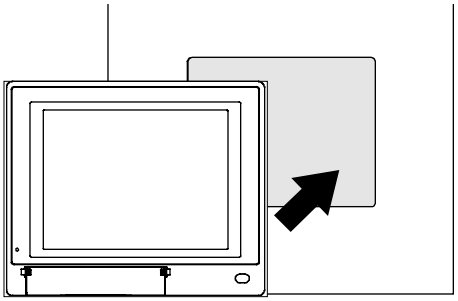
- Be sure that heat from surrounding equipment does not cause the PL to exceed its standard operating temperature.
- When installing the PL in a slanted panel, the panel face should not incline more than 30°.



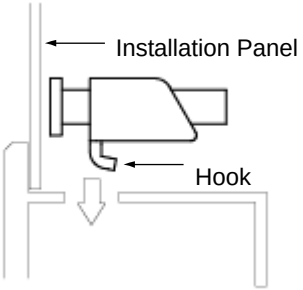
- The PL Series unit does not support longitudinal mounting.
- Any electromagnetic switch or Non Fuse breaker that generates arc should be placed away from the PL.

■ Installing the PL

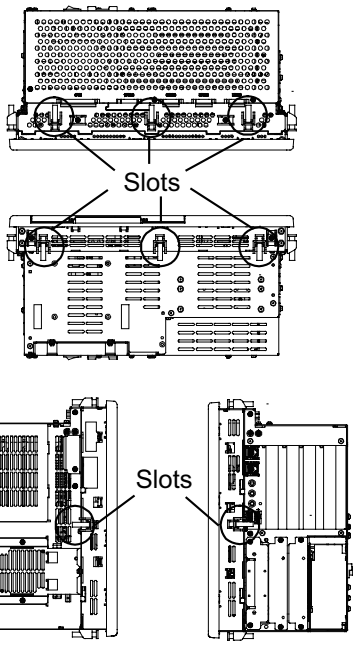
(1) Insert the PL into the panel cut, as shown.



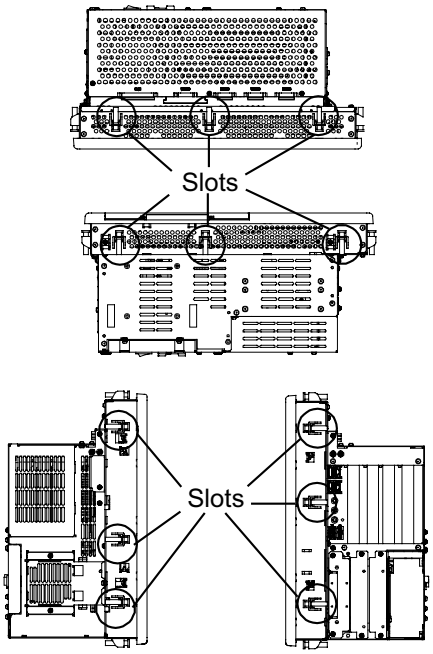
(2) Insert the installation fasteners into the PL insertion slots on the left, right, top, and bottom of the unit. (8 slots for PL-6930 Series and 12 slots for PL-7930 Series)



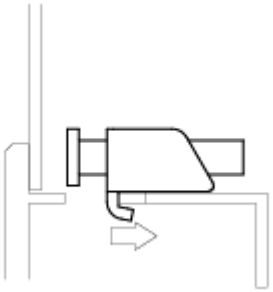
PL-6930 Series



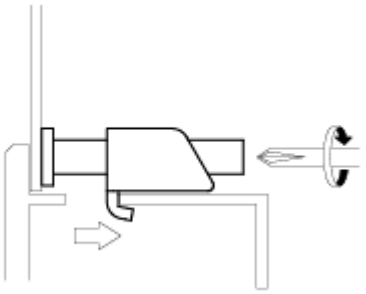
PL-7930 Series



(3) Insert each of the fasteners shown below. Be sure to pull the fastener back until it is flush with the rear of the attachment hole.



(4) Use a Phillips screwdriver to tighten each fastener screw and secure the PL in place.



IMPORTANT

- Tightening the screws with too much force can damage the PL unit's plastic case.
- For the moisture resistance effect, the torque required to tighten these screws is 0.5 N•m.

4.2 Wiring

This section describes the procedures and precautions to install the PL unit.

4.2.1 Connecting the Power cord

⚠ WARNING

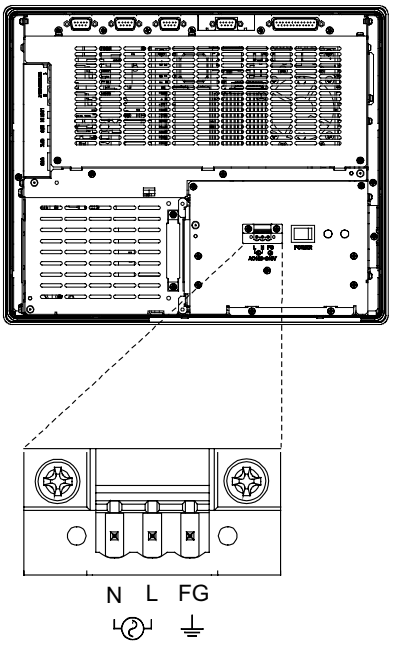
- To avoid an electric shock, prior to connecting the PL unit's power cord terminals to the power terminal block, confirm that the PL unit's power supply is completely turned OFF, via a breaker, or similar unit.
- The PL is designed to use AC100V/240V input. Supplying a power voltage other than that specified will damage the power source and the PL unit.
- When the FG terminal is connected, be sure the wire is grounded to avoid an electric shock at breakdown.

IMPORTANT

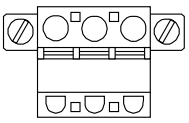
- When the FG terminal is connected, be sure the wire is grounded. Not grounding the PL unit will result in excess noise and vibration.
- The SG and FG terminals are connected internally in the PL unit.
- When connecting the SG wire to another device, be sure that the design of the system/connection does not produce a shorting loop.

Connect the power cord to the power plug on the rear of the PL unit. The power plug can be removed from Socket part of the PL unit.

Rear Side

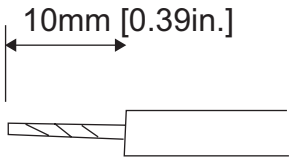


Power Connector



Power Plug

■ Power cord specifications

Power Cable Size	0.75mm² to 2.5mm² (18AWG to12AWG)
Type of Cable Core	Single or Strand Wire
Cable Core Length	

IMPORTANT

- Use copper conductors only.
- When using the Strand Wire, if the Conductor's end (individual) wires are not twisted correctly, the end wires may either short against each other, or against an electrode.

■ Wiring

When connecting the Power Cord, use the following items when performing wiring. (The items are manufactured by Phoenix Contact.) *1

Recommended Tool	SZS 0.6X3.5 (1205053)
Recommended Pin Terminals	AI 0.75-10GY (3201288) AI 1-10RD (3200182) AI 1.5-10BK (3200195) AI 2.5-12BUK (3200962)
Recommended Pin Terminal Crimp Tool	CRIMPFOX ZA3 (1201882)

NOTE

- The power supply plug FKC-2.5/3-STF-5.08 is manufactured by Phoenix Contact.

*1 For further details, please contact your local Phoenix Contact distributor.

■ Connecting the Power Cord

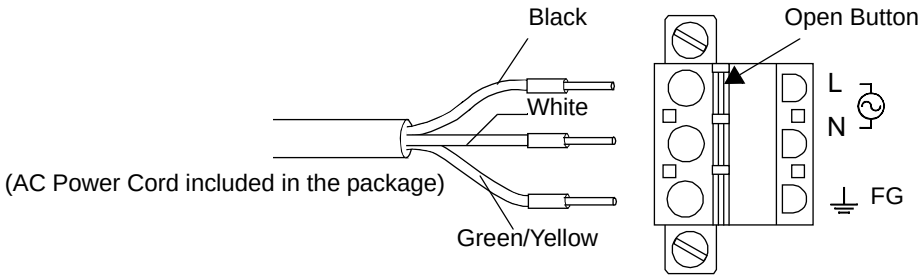
IMPORTANT

- To prevent the possibility of a terminal short, use a pin terminal that has an insulating sleeve.
- The temperature rating of field installed conductors: 75°C only.

(1) Confirm that the power cord is unplugged from the power supply.

(2) Open the cable attachment holes of the Power Plug. There are Open Buttons next to the holes corresponding to each of cable cores. Push that button with a straight slot screwdriver etc., and the button opens.

(3) Insert the crimp-type pin terminal of the cable core completely into the hole with the Open Button pushed. When stopping pushing the button, the hole shuts and the cable is fixed.



IMPORTANT

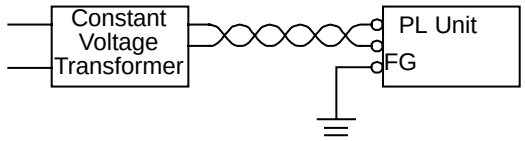
- Confirm that all wires are connected correctly.
- The torque required to tighten these screws is 0.5N•m to 0.6N•m.
- To prevent the possibility of a terminal short, use a pin terminal that has an insulating sleeve.
- The temperature rating of field installed conductors: 75^{o}C or less.

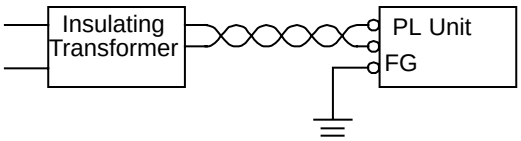
(4) Insert the power plug into the socket of the PL, then screw both of the minus (-) screws to fix. The torque required to tighten these screws is 0.5N•m to 0.6N•m.

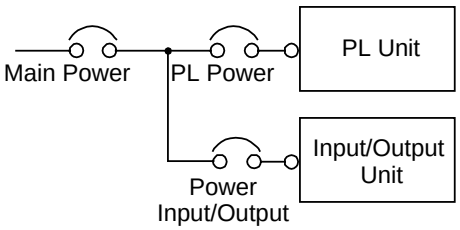
4.2.2 Connecting the Power Supply

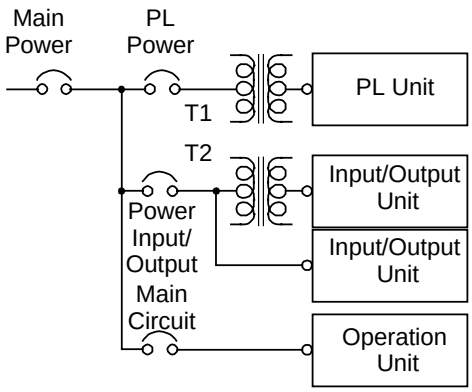
This section describes the precautions for supplying a power voltage.

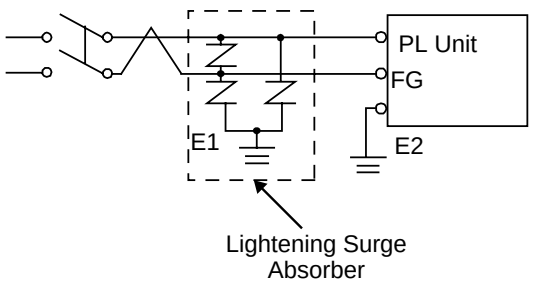
Twisted-pair cord











- If the supplied voltage exceeds the PL unit's range, connect a constant voltage transformer.

SEE → ■*Electrical (page2-2)*/■*Electrical (page2-4)*/

- For between the line and ground or between the lines, select a power supply that is low in noise. If there is an excess amount of noise, connect an insulating transformer.

IMPORTANT

- Use constant voltage and insulating transformers with capacities of 200VA or more.

- When supplying power to the PL unit, please separate the input/output and operation unit lines, as shown.
- To increase the noise resistance quality of the power cord, it is recommended to attach a ferrite core to the power cord.
- The power supply cord must not be bundled or positioned close to main circuit lines (high voltage, high current), or input/output signal lines.
- Connect a lightening surge absorber, as shown in the diagram, to deal with power surges.
- To avoid excess noise, make the power cord short enough as it can be.

IMPORTANT

- Be sure to ground the surge absorber (E1) separately from the PL unit (E2).
- Select a surge absorber that has a maximum circuit voltage greater than that of the peak voltage of the power supply.

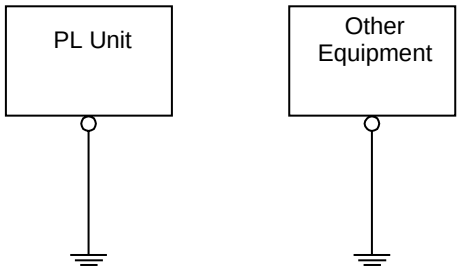
4.2.3 Grounding Precaution

This section describes the precautions for grounding the PL unit.

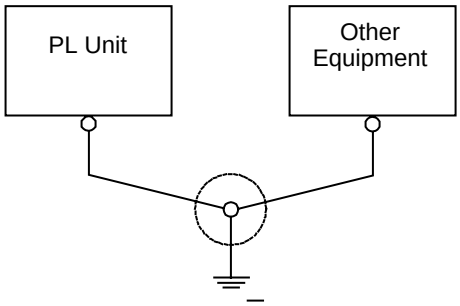
⚠ CAUTION

Do not use common grounding. It can lead to an accident or machine breakdown.

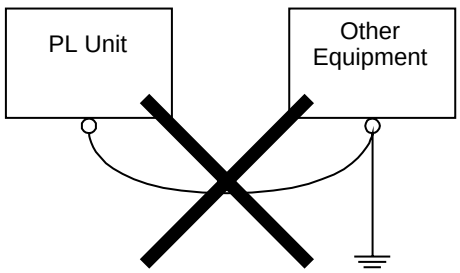
(a)Exclusive Grounding (BEST)



(b) Common Grounding (OK)



(c)Common Grounding (Not OK)



- When supplying power to the PL unit, be sure to separate the input/output and power lines, as shown. [diagram (a)]

IMPORTANT

- Check that the grounding resistance is 100Ω or less.
- FG and SG terminals are internally connected in the PL. When connecting an external device to the PL using the SG terminal, be sure to check that no short-circuit loop is created when you setup the system.
- The grounding wire should have a cross sectional area of 2mm^2 or greater. Create the connection point as close to the PL unit as possible, and make the wire as short, as possible. When using a long grounding wire, replace the thin wire with a thicker wire, and place it in a duct.

- If exclusive grounding is not possible, use a common connection point. [diagram (b)]

NOTE

- If the equipment does not function properly when grounded, disconnect the ground wire from the FG terminal.

4.2.4 I/O Signal Line Placement Precaution

- Input and output signal lines must be separated from the power control cables for operating circuits.
- If this is not possible, use a shielded cable and ground the edge of the shield.

Memo

5 System Setup

1. Setup Procedures
2. System Parameters

This chapter explains how to enter the PL system settings, as well as the cautions required both before and during set up.

5.1 Setup Procedures

The BIOS setting up procedures are the following.

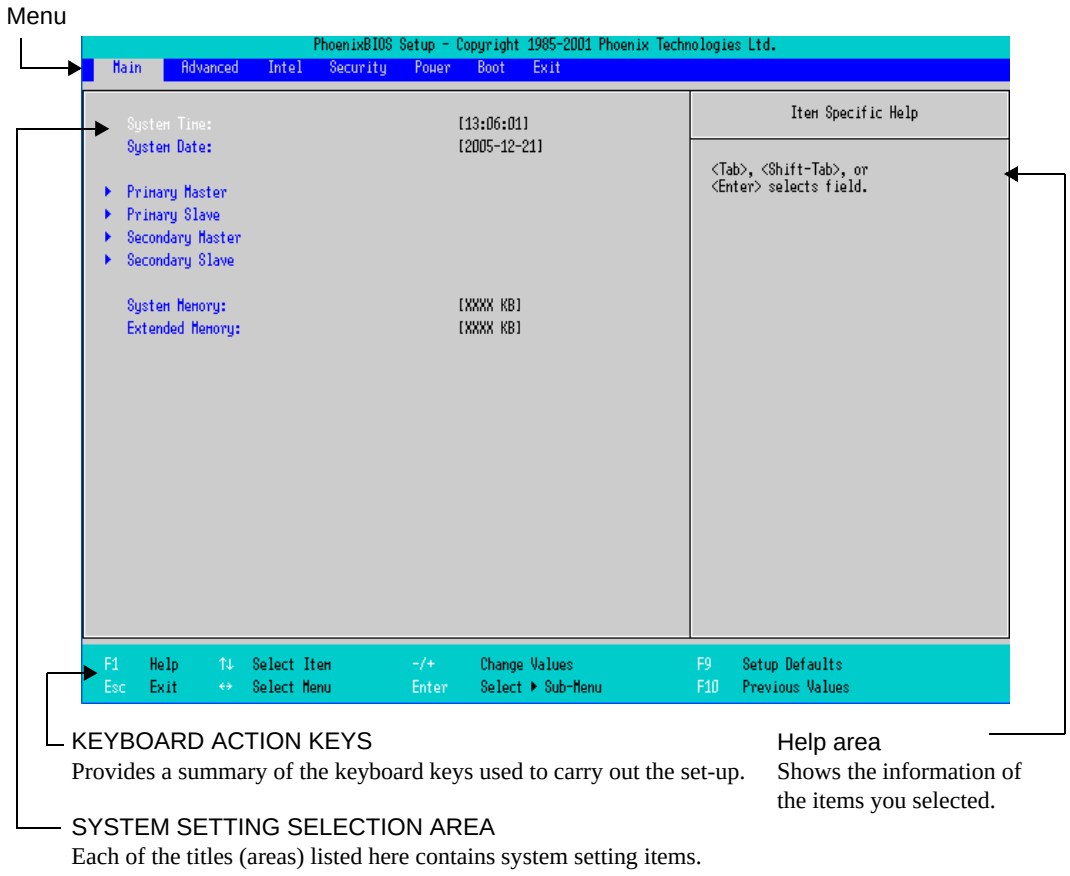
IMPORTANT

- Normally, use only the factory (default) settings.

(1) Connect a USB keyboard to the PL.

(2) Turn the PL's power ON.

(3) After the boot-up screen comes up, press the [F2] key until the following screen appears.


Menu
PhoenixBIOS Setup - Copyright 1985-2001 Phoenix Technologies Ltd.
Main Advanced Intel Security Power Boot Exit
System Time: [13:06:01]
System Date: [2005-12-21]
Primary Master
Primary Slave
Secondary Master
Secondary Slave
System Memory: [XXXX KB]
Extended Memory: [XXXX KB]
Item Specific Help
<Tab>, <Shift-Tab>, or <Enter> selects field.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▶ Sub-Menu F10 Previous Values
KEYBOARD ACTION KEYS
Provides a summary of the keyboard keys used to carry out the set-up.
Help area
Shows the information of the items you selected.
SYSTEM SETTING SELECTION AREA
Each of the titles (areas) listed here contains system setting items.

(4) To use the [→] [←] arrow keys, change the menu contents. A setting screen of each system will be displayed.

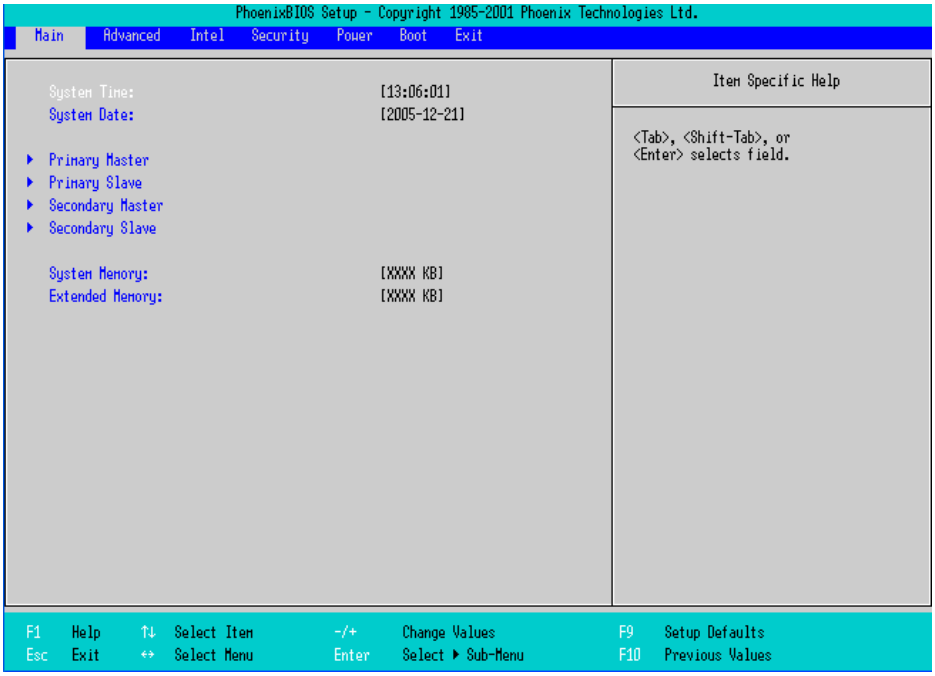
(5) To use the [↓] [↑] arrow keys, move up and down the cursor to select an item of the system, then confirm it by the [Enter] key. Now you can set up the item you selected.

5.2 System Parameters

Select the items to set up the system information. Here, we introduce the system parameters of each item.

IMPORTANT • Normally, use only the factory (default) settings.

5.2.1 Main


PhoenixBIOS Setup - Copyright 1985-2001 Phoenix Technologies Ltd.
Main Advanced Intel Security Power Boot Exit
System Time: [13:06:01]
System Date: [2005-12-21]
Primary Master
Primary Slave
Secondary Master
Secondary Slave
System Memory: [XXXX KB]
Extended Memory: [XXXX KB]
Item Specific Help
<Tab>, <Shift-Tab>, or <Enter> selects field.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Previous Values

System Time

Shows the time which the PL currently recognizes. Set a proper time for the PL by moving the cursor with the [Tab] key or using the [+] and [-] keys because the factory default setting is the Japan's Standard Time (GMT+09:00).

System Date

Shows the date which the PL currently recognizes. Set a proper date for the PL by the [+] and [-] keys.

Primary Master / Primary Slave / Secondary Master / Secondary Slave

Displays the name of devices connected to the PL. Pressing the [Enter] key will call up the Parameter settings menu.

SEE→ ■ *Primary Master / Primary Slave / Secondary Master / Secondary Slave (page5-4)*

System Memory

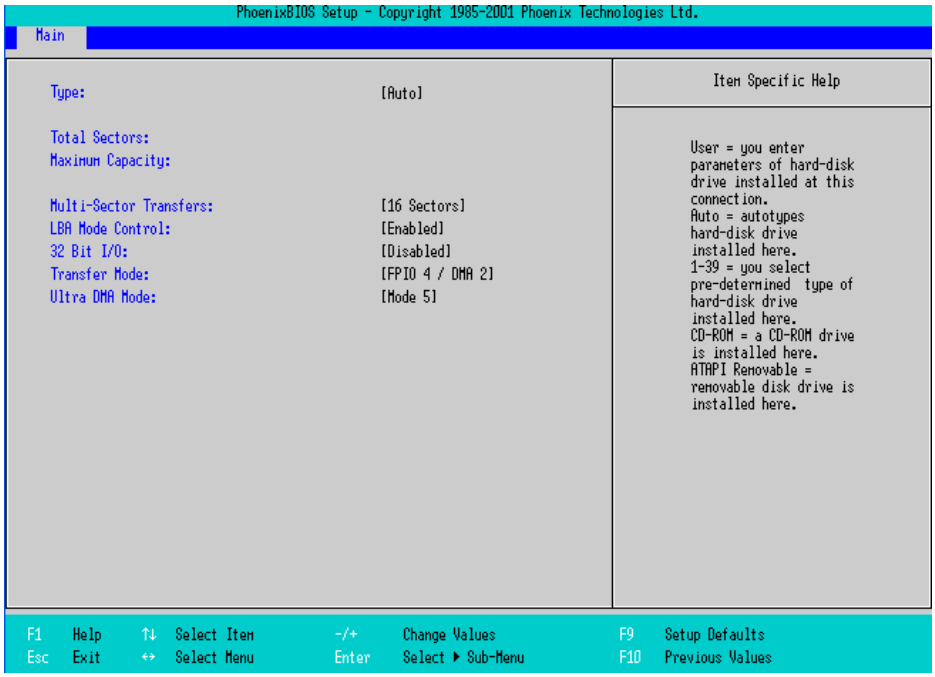
Shows the capacity of the "System Memory".

Extended Memory

Shows the capacity of the "Extended Memory". It is the loaded memory - the size of the Video Memory - 2048K bytes.

■Primary Master / Primary Slave / Secondary Master / Secondary Slave

Point out the cursor at the [Primary Master], [Primary Slave], [Secondary Master], or [Secondary Slave] on the “Main screen”, and then press the [Enter] key, so that the following screen is shown.


PhoenixBIOS Setup - Copyright 1985-2001 Phoenix Technologies Ltd.
Main
Type: [Auto]
Total Sectors:
Maximum Capacity:
Multi-Sector Transfers: [16 Sectors]
LBA Mode Control: [Enabled]
32 Bit I/O: [Disabled]
Transfer Mode: [FPIO 4 / DMA 2]
Ultra DMA Mode: [Mode 5]
Item Specific Help
User = you enter parameters of hard-disk drive installed at this connection.
Auto = autotypes hard-disk drive installed here.
1-39 = you select pre-determined type of hard-disk drive installed here.
CD-ROM = a CD-ROM drive is installed here.
ATAPI Removable = removable disk drive is installed here.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▶ Sub-Menu F10 Previous Values

Type

Specifies a type of drive which you use. Select from [Auto], [None], [ATAPI Removable], [CD-ROM], [IDE-Removable], [Other ATAPI], or [User]. The factory default type is [Auto].

Total Sectors

Shows the number of disk sectors connected to the unit.

Maximum Capacity

Shows the maximum capacity of the disk connected to the unit.

Multi Sector Transfers

Specifies the number of sectors per block, which are transferred to the memory.When the [Type] is [None], nothing is displayed. In other cases, select from [Disabled], [2 Sectors], [4 Sectors], [8 Sectors], or [16 Sectors].

LBA Mode Control

Enables or disables the Logical Block Addressing (LBA) instead of the Cylinders, Headers, and Sectors. When the [Type] is [None], nothing is displayed. In other cases, select from [Disabled] or [Enabled].

32 Bit I/O

Enables or disables the 32 bit transferring between CPU and IDE controller. The choice is [Enabled] or [Disabled]. When the [Type] is [None], nothing is displayed.

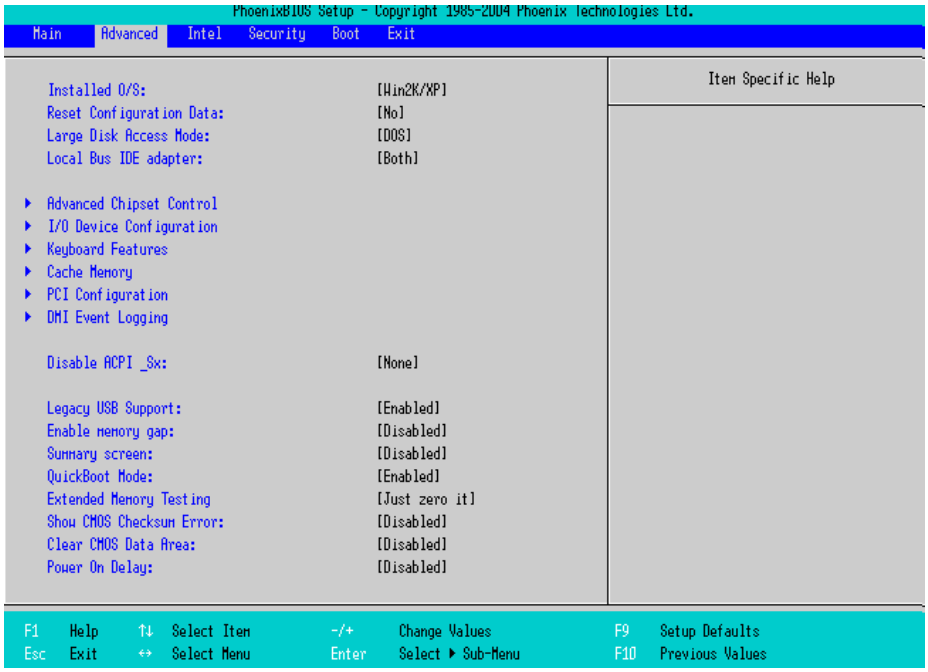
Transfer Mode

Specifies a method of transferring data. When the [type] is [None], nothing is displayed. In other cases, select from [Standard], [Fast PIO 1], [Fast PIO 2], [Fast PIO 3], [Fast PIO 4], [FPIO 3/DMA 1], or [FPIO 4/DMA 2]

Ultra DMA Mode

Specifies a Ultra DMA mode for the Hard drive. When the [type] is [None], nothing is displayed. In other cases, select from [Disabled], [Mode 0], [Mode 1], [Mode 2], [Mode 3], [Mode 4], or [Mode 5].

5.2.2 Advanced



Installed O/S

Specifies a type of OS of the unit. Select from [Other], [Win95], [Win98], [WinMe], or [Win2K/XP]. The factory default setting is [Win2K/XP].

Reset Configuration Data

Specifies whether you want to reset the Plug & Play information which is recorded in the Extended System Configuration Data (ESCD) Block of the CMOS RAM, when the system boots up next time. The choice is [Yes] or [No] and the factory default setting is [No].

Large Disk Access Mode

When you use UNIX or NetWare for OS, the setting should be [Other]. The choice is [DOS] or [Other] and the factory default setting is [DOS].

Local Bus IDE adapter

Specifies an enabled/disabled state for the IDE controller. Select from [Both], [Primary], [Secondary], or [Disabled]. The the factory default setting is [Both].

Advanced Chipset Control

Point the cursor to the [Advanced Chipset Control] and press the [Enter] Key, so that you can set up details.

SEE→ ■*Advanced Chipset Control (page5-9)*

I/O Device Configuration

Point the cursor to the [I/O Device Configuration] and press the [Enter] Key, so that you can go to the Serial Port Setting screen

SEE → ■ *I/O Device Configuration (page5-11)*

Keyboard Features

Point the cursor to the [Keyboard Features] and press the [Enter] Key, so that you can go to the keyboard set-up screen.

SEE → ■ *Keyboard Features (page5-12)*

Cache Memory

Point the cursor to the [Cache Memory] and press the [Enter] Key, so that you can go to the set-up screen for Cache Memory.

SEE → ■ *Cache Memory (page5-13)*

PCI Configuration

Point the cursor to the [PCI Configuration] and press the [Enter] Key, so that you can go to the set-up screen for PCI IRQ.

SEE → ■ *PCI Configuration (page5-15)*

DMI Event Logging

Point the cursor to [DMI Event Logging] and press the [Enter] Key to go to the set-up screen for DMI event logging.

SEE → ■ *DMI Event Logging (page5-17)*

Disable ACPI_Sx

Specifies the API's state. Select from [None], [S1]. With this action, the selecting state will be enabled. The factory default setting is [None].

Legacy USB Support

Specifies an enabled/disabled state for the USB when the USB keyboard etc. is used under DOS. The choice is [Enabled] or [Disabled]. The factory default setting is [Enabled].

Enable Memory gap

Specifies an enabled/disabled state for the Memory gap. The choice is [Enabled] or [Disabled]. The factory default setting is [Disabled].

Summary screen

Specifies whether you need to display the Summary screen in running the daisy-chained devices. The choice is [Enabled] or [Disabled]. The factory default setting is [Disable].

QuickBoot Mode

Specifies whether the system boot-up should be "QuickBoot mode". When the choice is [Disabled], it will execute a system test at the system starting-up. The factory default setting is [Enabled].

Extended Memory Testing

Specifies whether a test for the Extended Memory needs to be executed at the system starting-up. The test types are listed below. The factory default setting is [Just Zero it].

[Normal] Normal test

[Just Zero it] Simple test

[None] No test

Show CMOS Checksum Error

Specifies whether you need to display the errors in case CMOS Checksum Error occurs. The choice is [Enabled] or [Disabled]. The factory default setting is [Disabled].

Clear CMOS Data Area

Specifies whether you need to Clear CMOS Data Area. The choice is [Enabled] or [Disabled]. The factory default setting is [Disabled].

Power On Delay

Specifies whether the system waits during boot-up. Select from [Enabled] or [Disabled]. When [Enabled] is selected, the system waits about 4 seconds during boot-up. The factory default setting is [Disabled].

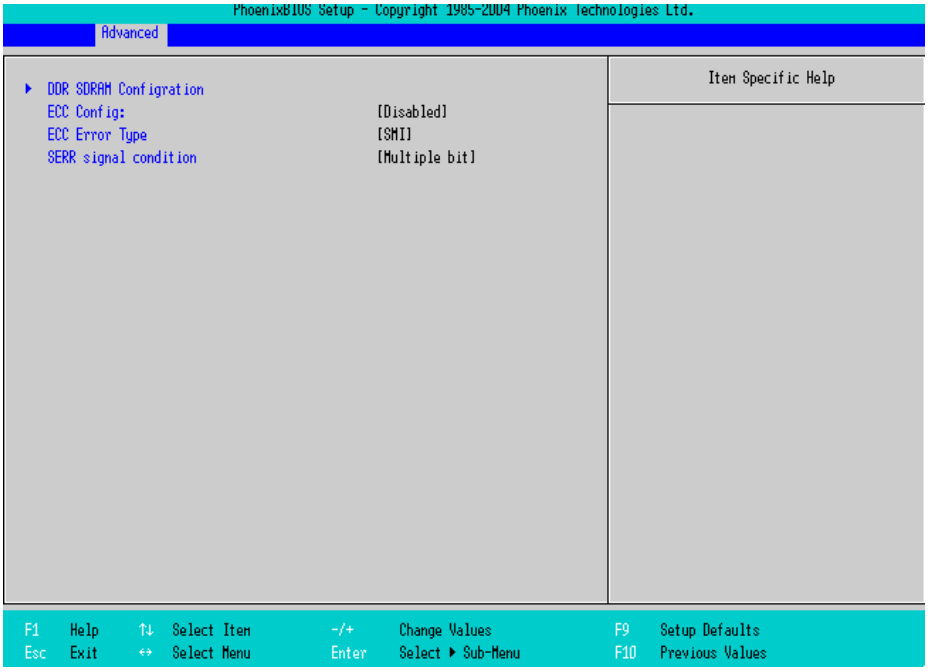
NOTE

- If a USB device such as USB memory is connected to the PL when the PL is started, the following phenomenon may occur, depending on the device:
  - It takes about 1 minute before the OS starts up.
  - The PL does not recognize the USB device.

  These problems may be solved by setting [Power On Delay] to [Enable].

■Advanced Chipset Control

Point the cursor to the [Advanced Chipset Control] on the [Advanced] screen and press the [Enter] Key, so that the next screen will be displayed.


PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
Advanced
DDR SDRAM Configration
ECC Config: [Disabled]
ECC Error Type [SMI]
SERR signal condition [Multiple bit]
Item Specific Help
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Previous Values

DDR SDRAM Configuration

Point the cursor to the [DDR SDRAM Configuration] and press the [Enter] Key, so that you can go to the Memory Setting screen.

SEE→ ◆ *DDR SDRAM Configuration (page5-10)*

ECC Config

Specifies whether the ECC function for memory, which is a function of recovering errors, needs to be used. This parameter is displayed only when memory with the ECC function is used. Select from [ECC] or [Disabled]. The factory default setting is [Disabled].

ECC Error Type

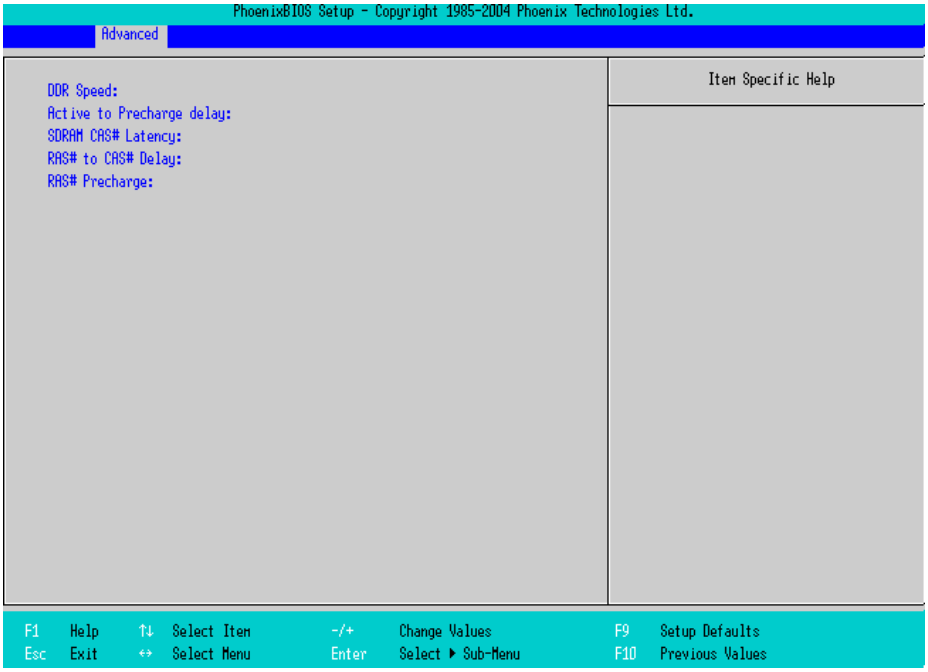
Specifies the interruption setting when an ECC error occurs. This parameter is displayed only when memory with the ECC function is used. Select from [None], [NMI], [SMI], or [SCI]. The factory default setting is [SMI].

SERR signal condition

Specifies error bit(s) for ECC. This parameter is displayed only when memory with the ECC function is used. Select from [None], [Single bit], [Multiple bit], or [Both]. The factory default setting is [Multiple bit].

◆ DDR SDRAM Configuration

Point the cursor to the [DDR SDRAM Configuration] on the [Advanced Chipset Control] and press the [Enter] Key, so that the next screen will be displayed.


PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
Advanced
DDR Speed:
Active to Precharge delay:
SDRAM CAS# Latency:
RAS# to CAS# Delay:
RAS# Precharge:
Item Specific Help
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Previous Values

DDR Speed

Specifies the clock frequency for the memory.

Active to Precharge delay

Specifies the timing of DRAM Precharge processing.

SDRAM RAS# to CAS# Latency

Specifies the latency time for CAS.

RAS# to CAS# Delay

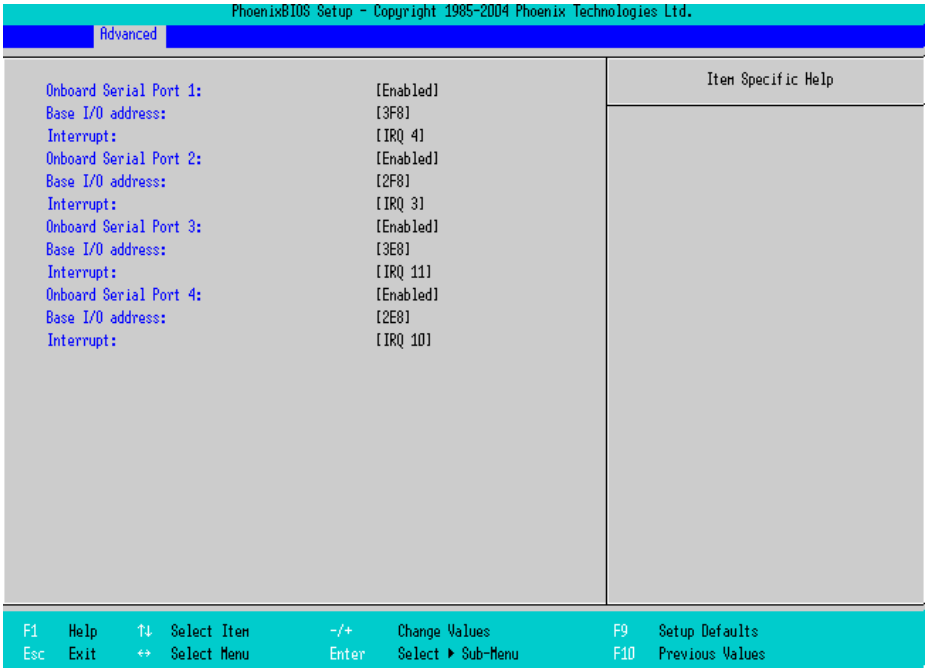
Specifies a transfer timing from RAS to CAS.

RAS# Precharge

Specifies the number of cycles of RAS precharge.

■I/O Device Configuration

Point the cursor to the [I/O Device Configuration] on the [Advanced] screen and press the [Enter] Key, so that the next screen will be displayed.


PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
Advanced
Item Specific Help
Onboard Serial Port 1: [Enabled]
Base I/O address: [3F8]
Interrupt: [IRQ 4]
Onboard Serial Port 2: [Enabled]
Base I/O address: [2F8]
Interrupt: [IRQ 3]
Onboard Serial Port 3: [Enabled]
Base I/O address: [3E8]
Interrupt: [IRQ 11]
Onboard Serial Port 4: [Enabled]
Base I/O address: [2E8]
Interrupt: [IRQ 10]
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▶ Sub-Menu F10 Previous Values

On board Serial Port 1

Specifies an enabled/disabled state for the COM1. Select from [Disabled] or [Enabled]. The factory default setting is [Enabled]. In addition, the factory default setting for Base I/O Address is [3F8], and for Interrupt is [IRQ 4].

On board Serial Port 2

Specifies an enabled/disabled state for the COM2. Select from [Disabled] or [Enabled]. The factory default setting is [Enabled]. In addition, the factory default setting for Base I/O Address is [2F8], and for Interrupt is [IRQ 3].

On board Serial Port 3

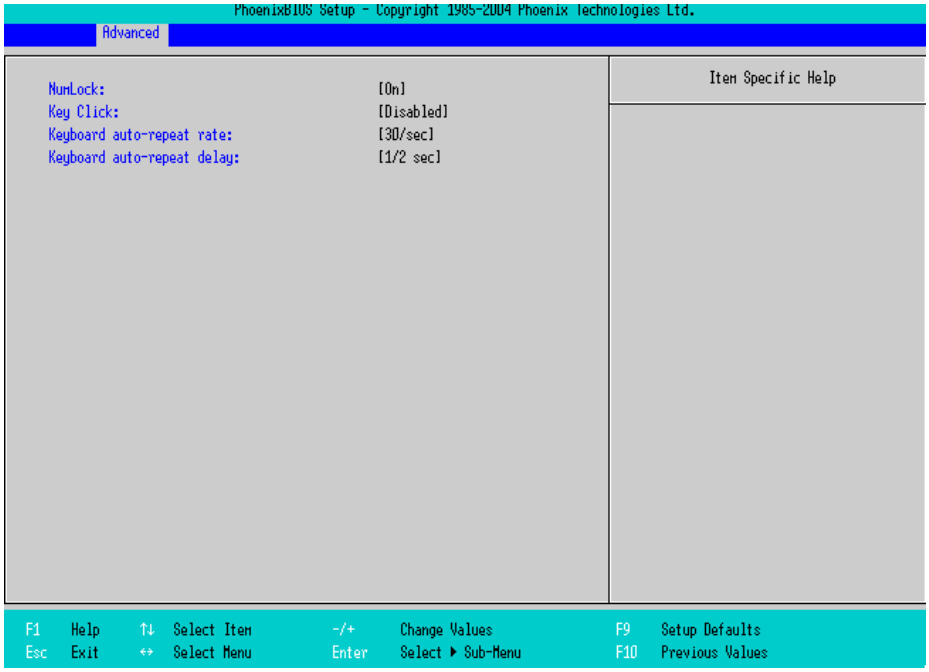
Specifies an enabled/disabled state for the COM3. Select from [Disabled] or [Enabled]. The factory default setting is [Enabled]. In addition, the factory default setting for Base I/O Address is [3E8], and for Interrupt is [IRQ 11].

On board Serial Port 4

Specifies an enabled/disabled state for the COM4. Select from [Disabled] or [Enabled]. The factory default setting is [Enabled]. In addition, the factory default setting for Base I/O Address is [2E8], and for Interrupt is [IRQ 10].

■Keyboard Features

Point the cursor to the [Keyboard Features] on the [Advanced Chipset Control] and press the [Enter] Key, so that the next screen will be displayed.


PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
Advanced
NumLock: [On]
Key Click: [Disabled]
Keyboard auto-repeat rate: [30/sec]
Keyboard auto-repeat delay: [1/2 sec]
Item Specific Help
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▶ Sub-Menu F10 Previous Values

NumLock

Specifies the NumLock status. Select from [Auto], [On], or [Off]. The factory default setting is [On].

KeyClick

Specifies an enabled/disabled state for the keyboard's click sound. Select [Enabled] or [Disabled]. The factory default setting is [Disabled].

Keyboard auto-repeat rate

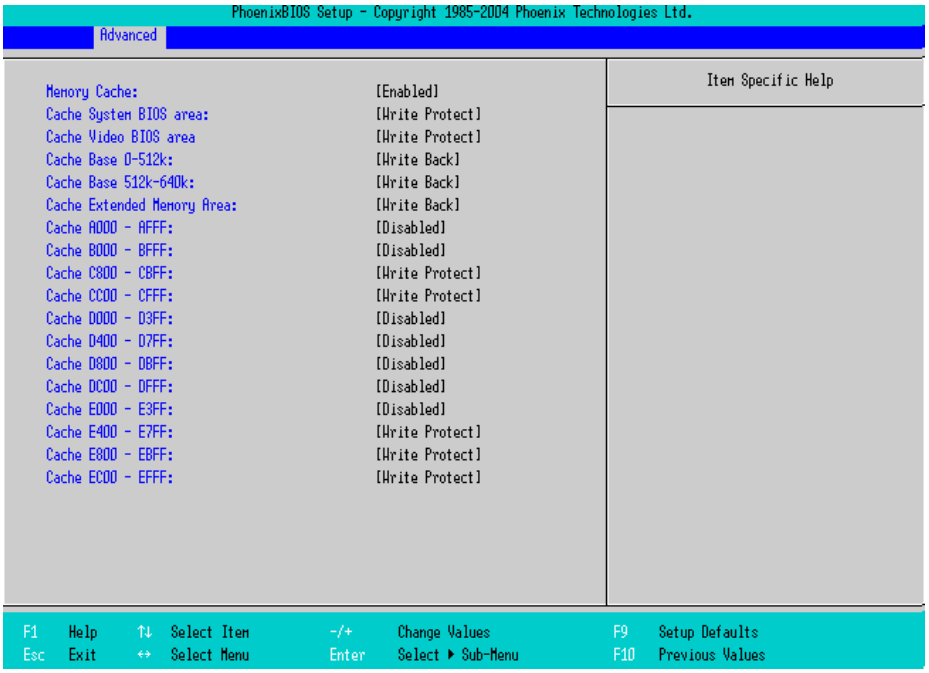
Specifies the figures of how many times a key can input letters while being pressed for a second. Select from [30/sec.], [26.7/sec.], [21.8/sec.], [18.5/sec.], [13.3/sec.], [10/sec.], [6/sec.], or [2/sec.]. The factory default setting is [30/sec.].

Keyboard auto-repeat delay

Specifies a time duration until the auto-repeat function becomes enabled from a key is pressed. Select from [1/4 sec.], [1/2 sec.], [3/4 sec.], or [1 sec.]. The factory default setting is [1/2 sec.].

■Cache Memory

Point the cursor to the [Cache Memory] on the [Advanced] screen and press the [Enter] Key, so that the next screen will be displayed.


PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
Advanced
Item Specific Help
Memory Cache: [Enabled]
Cache System BIOS area: [Write Protect]
Cache Video BIOS area [Write Protect]
Cache Base 0-512k: [Write Back]
Cache Base 512k-640k: [Write Back]
Cache Extended Memory Area: [Write Back]
Cache A000 - AFFF: [Disabled]
Cache B000 - BFFF: [Disabled]
Cache C800 - CBFF: [Write Protect]
Cache CC00 - CFFF: [Write Protect]
Cache D000 - D3FF: [Disabled]
Cache D400 - D7FF: [Disabled]
Cache D800 - DBFF: [Disabled]
Cache DC00 - DFFF: [Disabled]
Cache E000 - E3FF: [Disabled]
Cache E400 - E7FF: [Write Protect]
Cache E800 - EBFF: [Write Protect]
Cache EC00 - EFFF: [Write Protect]
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Previous Values

Memory Cache

Specifies an enabled/disabled state for the Memory Cache. The choice is [Enabled] or [Disabled]. The factory default setting is [Enabled].

Cache System Bios area

Specifies the cache set-up for the System BIOS area. The choice is [uncached] or [Write Protect]. The factory default setting is [Write Protect].

Cache Video BIOS area

Specifies the cache set-up for the VIDEO BIOS area. The choice is [uncached] or [Write Protect]. The factory default setting is [Write Protect].

Cache Base 0-512k

Specifies the cache set-up for the Base Memory, 0k to 512k. Select from [uncached], [Write Through], [Write Protect], or [Write Back]. The factory default setting is [Write Back].

Cache Base 512-640k

Specifies the cache set-up for the Base Memory, 512k to 620k. Select from [uncached], [Write Through], [Write Protect], or [Write Back]. The factory default setting is [Write Back].

Cache Extended Memory Area

Specifies the cache set-up for the Extended Memory area. Select from [uncached], [Write Through], [Write Protect], or [Write Back]. The factory default setting is [Write Back].

Cache xxxx-xxxx

Specifies the cache setting for each address. Select from [Disabled], [USWC Caching] (The address A000 - AFFF and B000 - BFFF are only available.), [Write Through], [Write Protect], or [Write Back]. The factory default setting is as follows.

A000 - AFFF Disabled

B000 - BFFF Disabled

C800 - CBFF Write Protect (VIDEO Memory)

CC00 - CFFF Write Protect

D000 - D3FF Disabled

D400 - D7FF Disabled

D800 - DBFF Disabled

DC00 - DFFF Disabled

E000 - E3FF Disabled

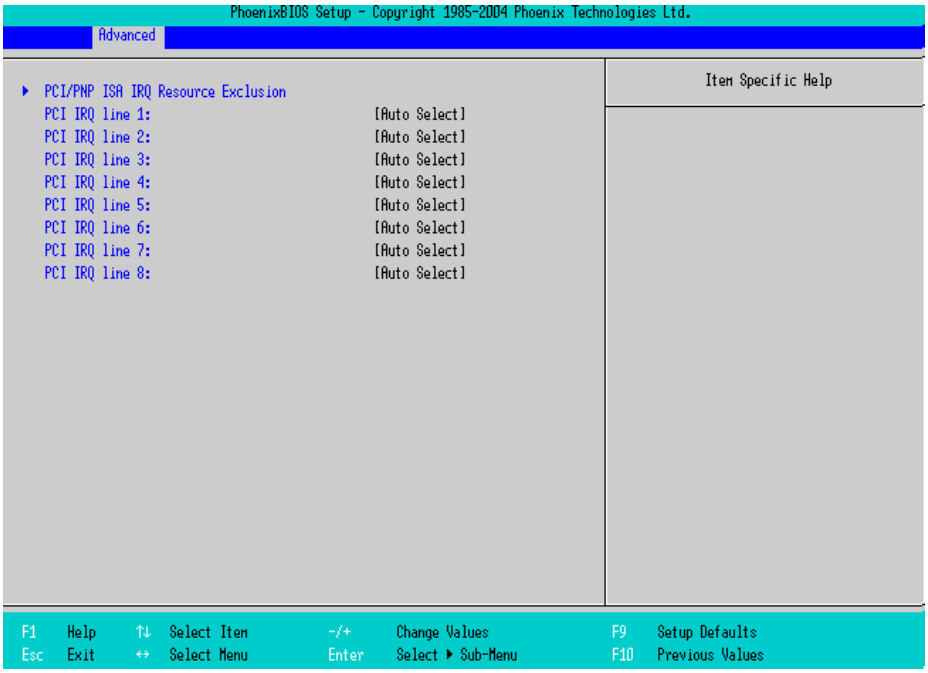
E400 - E7FF Write Protect (PXE)

E800 - EBFF Write Protect

EC00 - EFFF Write Protect

■PCI Configuration

Point the cursor to the [PCI Configuration] on the [Advanced] screen and press the [Enter] Key, so that the next screen will be displayed.


PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
Advanced
PCI/PNP ISA IRQ Resource Exclusion
PCI IRQ line 1: [Auto Select]
PCI IRQ line 2: [Auto Select]
PCI IRQ line 3: [Auto Select]
PCI IRQ line 4: [Auto Select]
PCI IRQ line 5: [Auto Select]
PCI IRQ line 6: [Auto Select]
PCI IRQ line 7: [Auto Select]
PCI IRQ line 8: [Auto Select]
Item Specific Help
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Previous Values

PCI/PNP ISA IRQ Resource Exclusion

Point the cursor to the [PCI/PNP ISA IRQ Resource Exclusion] and press the [Enter] Key, so that you can go to the [ISA IRQ] set-up screen.

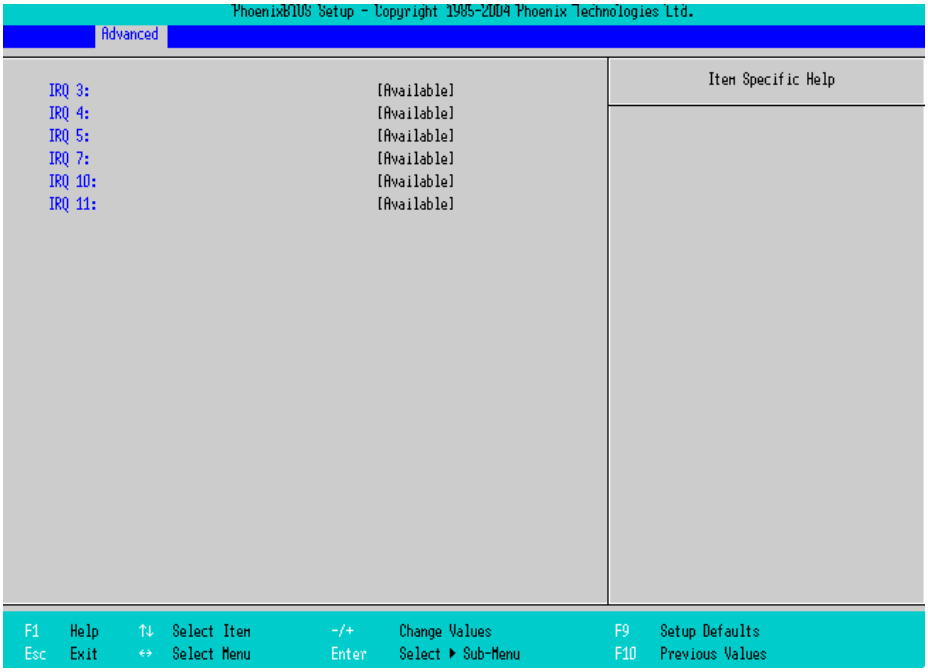
SEE→ ◆ *PCI/PNP ISA IRQ Resource Exclusion (page5-16)*

PCI IRQ line 1 to 8

Specifies the Interrupt Request Lines (IRQ) for PCI. Select from [Disabled], [Auto Select], [3], [4], [5], [7], [9], [10], [11], [12], [14], or [15]. The factory default setting is [Auto Select].

◆ PCI/PNP ISA IRQ Resource Exclusion

Point the cursor to the [PCI/PNP ISA IRQ Resource Exclusion] on the [PCI Configuration] screen and press the [Enter] Key, so that the next screen will be displayed.

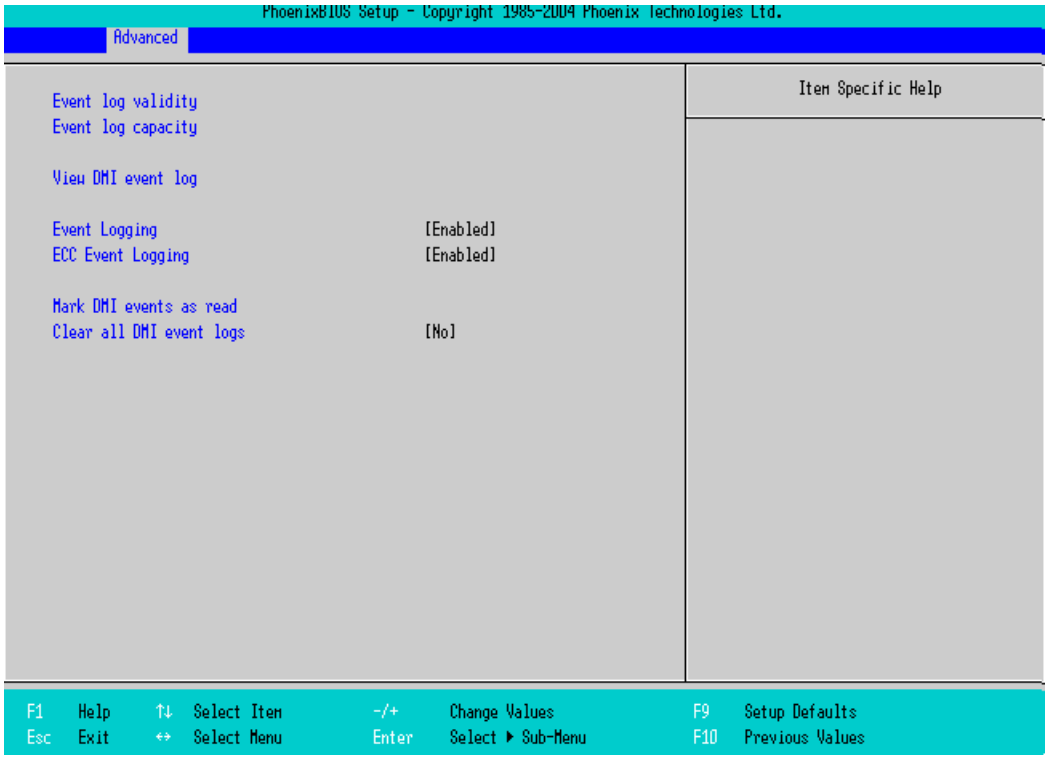

PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
Advanced
IRQ 3: [Available]
IRQ 4: [Available]
IRQ 5: [Available]
IRQ 7: [Available]
IRQ 10: [Available]
IRQ 11: [Available]
Item Specific Help
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Previous Values

IRQ3,4,5,7,10,11

Specifies the IRQ which is allocated to the legacy device. Select from [Available] or [Reserved]. The factory default setting is [Available].

■ DMI Event Logging

Specifies the parameters related to DMI event logging. Point the cursor to the [DMI Event Logging] on the [Advanced] screen and press the [Enter] Key, so that the following screen will be displayed.


PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
Advanced
Item Specific Help
Event log validity
Event log capacity
View DMI event log
Event Logging [Enabled]
ECC Event Logging [Enabled]
Mark DMI events as read
Clear all DMI event logs [No]
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▶ Sub-Menu F10 Previous Values

Event log validity

Shows the status of the event log storage area. [Valid] is shown when the status is normal, and [Not valid] is shown when the status is abnormal.

Event log capacity

Shows the status of the area to which event logs are written. [Full] is shown when the area is full, and [Space Available] is shown when the area is not full.

View DMI event log

Point the cursor to [View DMI event log] and press the [Enter] Key to view the DMI event logs.

Event Logging

Specifies whether event logs need to be recorded. Select from [Enabled] or [Disabled]. The factory default setting is [Enabled].

ECC Event Logging

Specifies whether the event logs related to memory ECC need to be recorded. Select from [Enabled] or [Disabled]. The factory default setting is [Enabled].

Mark DMI events as read

Point the cursor to [Mark DMI events as read] and press the [Enter] Key to mark unread event logs as read.

Clear all DMI event logs

Specifies whether all the recorded DMI event logs need to be deleted. Select from [Yes] or [No]. The factory default setting is [No].

5.2.3 Intel

PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
Main Advanced Intel Security Boot Exit
CPU Control Sub-Menu
MCH Control Sub-Menu
Video (Intel IGD) Control Sub-Menu
ICH Control Sub-Menu
ACPI Control Sub-Menu
APM Control Sub-Menu
Workaround Control Sub-Menu
Item Specific Help
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Previous Values

CPU Control Sub-Menu

Point the cursor to the [CPU Control Sub-Menu] on the [Intel] screen and press the [Enter] Key, so that you can go to the [CPU] set-up screen.

SEE → ■ *CPU Control Sub-Menu (page5-21)*

MCH Control Sub-Menu

Point the cursor to the [MCH Control Sub-Menu] on the [Intel] screen and press the [Enter] Key, so that you can go to the [MCH] set-up screen.

SEE → ■ *MCH Control Sub-Menu (page5-22)*

Video (Intel IGD) Control Sub-Menu

Point the cursor to the [Video (Intel IGD) Control Sub-Menu] on the [Intel] screen and press the [Enter] Key, so that you can go to the set-up screen for display.

SEE → ■ *Video (Intel IGD) Control Sub-Menu (page5-24)*

ICH Sub-Menu

Point the cursor to the [ICH Control Sub-Menu] on the [Intel] screen and press the [Enter] Key, so that you can go to the [ICH] set-up screen.

SEE → ■ *ICH Control Sub-Menu (page5-25)*

ACPI Control Sub-Menu

Point the cursor to the [ACPI Control Sub-Menu] on the [Intel] screen and press the [Enter] Key, so that you can go to the [ACPI] set-up screen.

SEE → ■ *ACPI Control Sub-Menu (page5-27)*

APM Control Sub-Menu

Point the cursor to the [APM Control Sub-Menu] on the [Intel] screen and press the [Enter] Key, so that you can go to the [APM] set-up screen. If you use APM OS, you are requested to set up this configuration.

SEE → ■ *APM Control Sub-Menu (page5-28)*

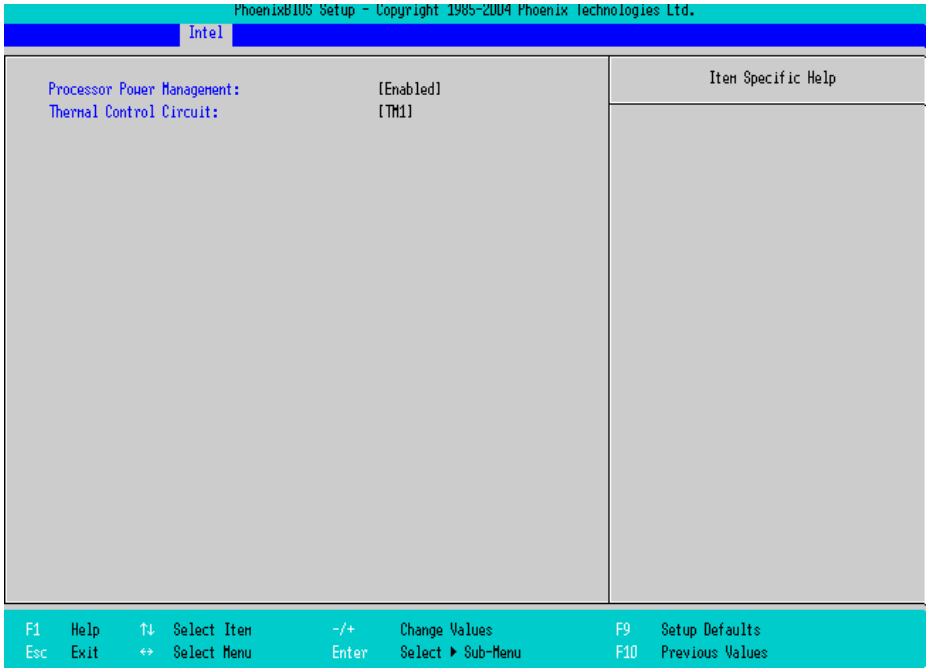
Workaround Control Sub-Menu

Point the cursor to the [Workaround Control Sub-Menu] on the [Intel] screen and press the [Enter] Key, so that you can go to the set-up screen of the whole platform.

SEE → ■ *Workaround Control Sub-Menu (page5-29)*

■CPU Control Sub-Menu

Point the cursor to the [CPU Control Sub-Menu] on the [Intel] screen and press the [Enter] Key, so that this screen will be displayed.


PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
Intel
Processor Power Management: [Enabled]
Thermal Control Circuit: [TM1]
Item Specific Help
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Previous Values

Processor Power Management

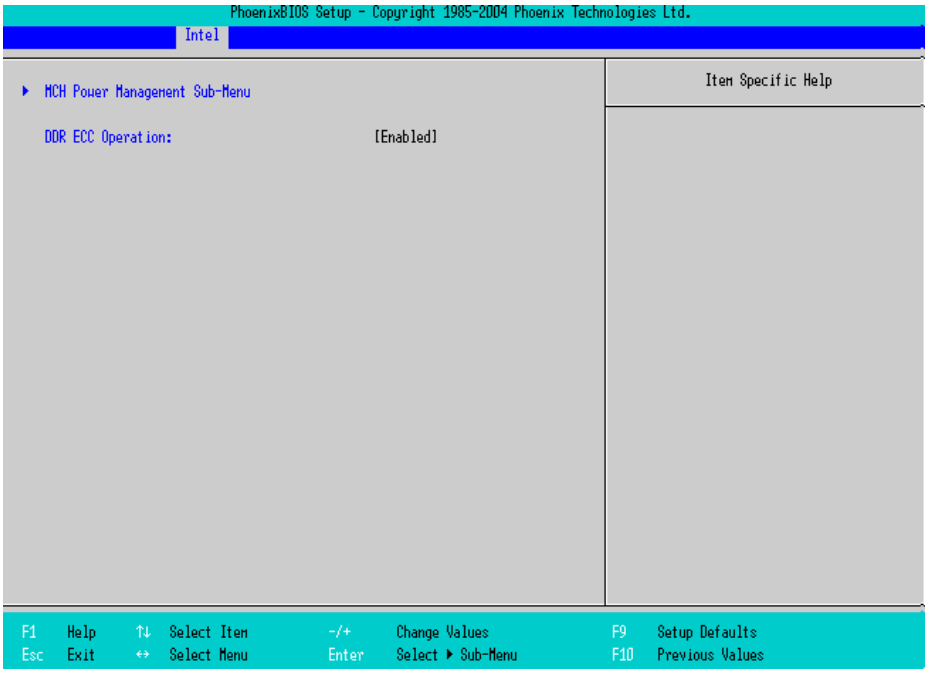
This is a function that controls the processor's power state. Select from [Disabled], or [C States Only]. The factory default setting is [C States Only] and the default should be applied when using.

Thermal Control Circuit

This is a function that protects the CPU's temperature, and its setting is a situation that if it exceeds the limit that CPU is able to work properly. Select from [Disabled], [TM1], or [TM2]. The factory default setting is [TM1] and the default should be applied for use.

■MCH Control Sub-Menu

Point the cursor to the [MCH Control Sub-Menu] on the [Intel] screen and press the [Enter] Key, so that this screen will be displayed.


PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
Intel
MCH Power Management Sub-Menu
DDR ECC Operation: [Enabled]
Item Specific Help
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Previous Values

MCH Power Management Sub-Menu

Goes to the Chipset set-up screen.

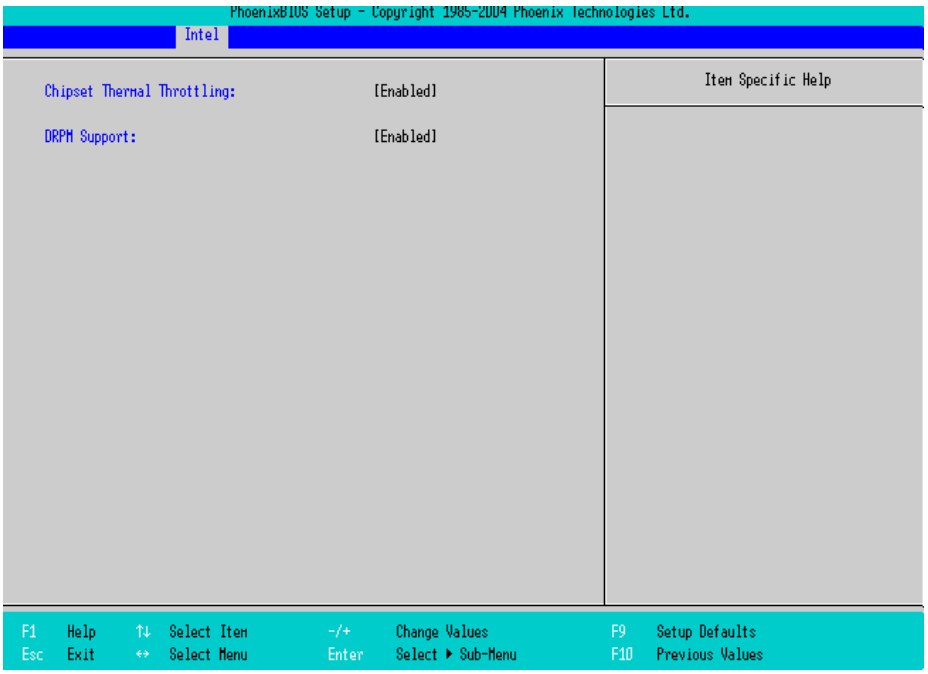
SEE→ ◆ *MCH Power Management Sub-Menu (page5-23)*

DDR ECC Operation

Specifies whether you use ECC memory or not. The choice is [Enabled] or [Disabled] and the default factory setting is [Enabled].

◆ MCH Power Management Sub-Menu

Point the cursor to the [MCH Power Management Sub-Menu] on the [Intel] screen and press the [Enter] Key, so that this screen will be displayed.


PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
Intel
Chipset Thermal Throttling: [Enabled]
DRPM Support: [Enabled]
Item Specific Help
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Previous Values

Chipset Thermal Throttling

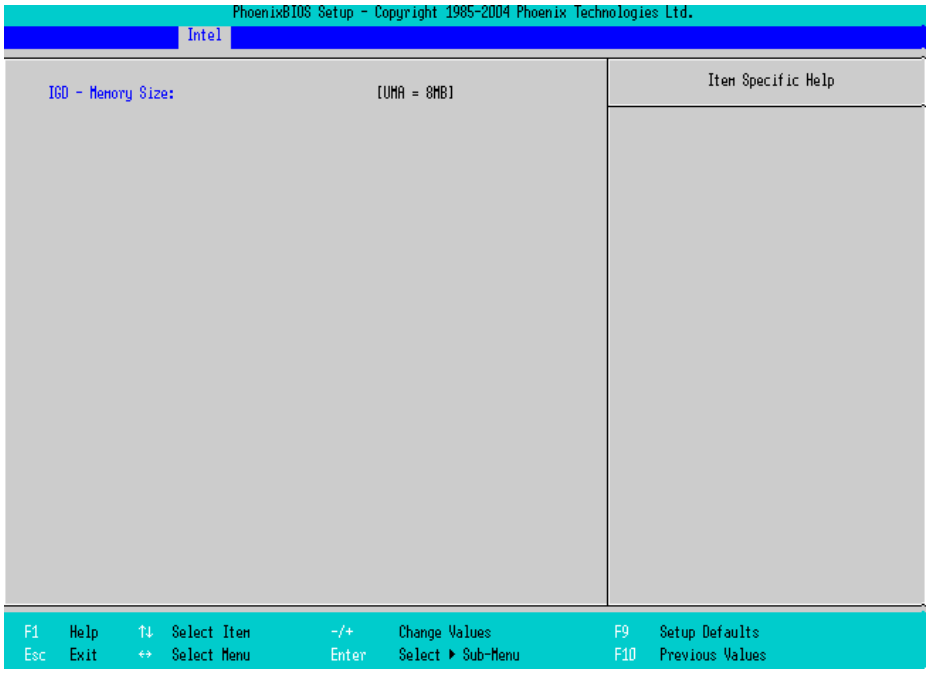
Specifies a thermal throttle, a system to prevent a themorunway, for chipset. The choice is [Enabled] or [Disabled]. The factory default setting is [Enabled].

DRPM Support

Specifies an enabled/disabled state for the setting of Dynamic Row Power Management. The choice is [Enabled] or [Disabled]. The factory default setting is [Enabled].

■Video (Intel IGD) Control Sub-Menu

Point the cursor to the [Video (Intel IGD) Control Sub-Menu] on the [Intel] screen and press the [Enter] Key, so that this screen will be displayed.

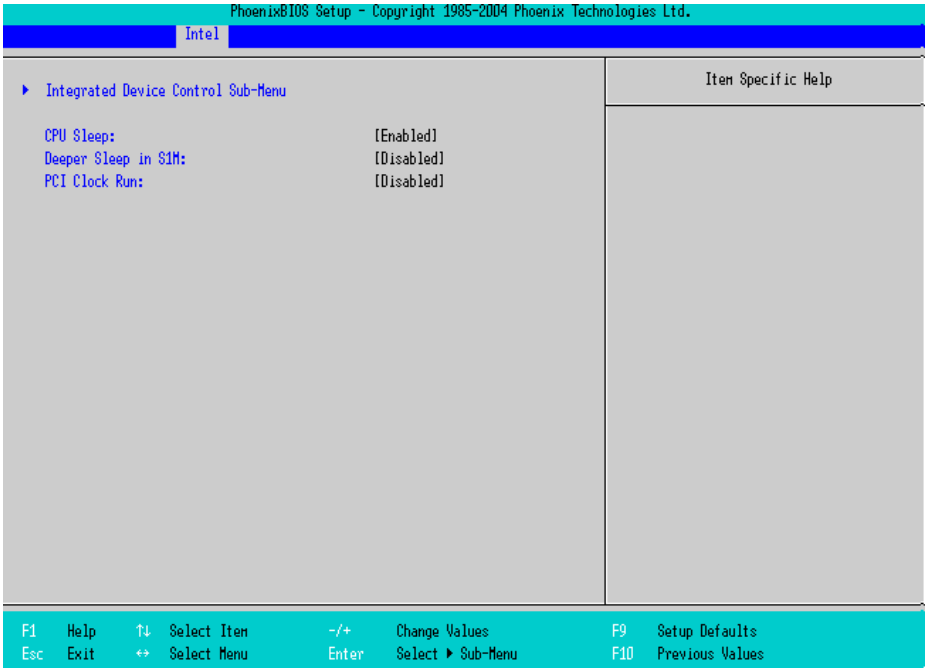

PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
Intel
IGD - Memory Size:
[UMA = 8MB]
Item Specific Help
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Previous Values

IGD-Memory Size

Specifies an allocation capacity for the Video Memory. Select from [UMA=1MB], [UMA=8MB], [UMA=16MB], or [UMA=32MB]. the factory default setting is [UMA=8MB].

■ICH Control Sub-Menu

Point the cursor to the [ICH Control Sub-Menu] on the [Intel] screen and press the [Enter] Key, so that this screen will be displayed.


PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
Intel
Integrated Device Control Sub-Menu
CPU Sleep: [Enabled]
Deeper Sleep in S1M: [Disabled]
PCI Clock Run: [Disabled]
Item Specific Help
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▶ Sub-Menu F10 Previous Values

Integrated Device Control Sub-Menu

Goes to the setting screen where an enabled/disabled state for the USB and the LAN and the PCMCIA is specified.

SEE→ ◆ *Integrated Device Control Sub-Menu (page5-26)*

CPU Sleep

Specifies whether the CPU needs power saving. The choice is [Enabled] or [Disabled]. The factory default setting is [Enabled].

Deeper Sleep in S1M

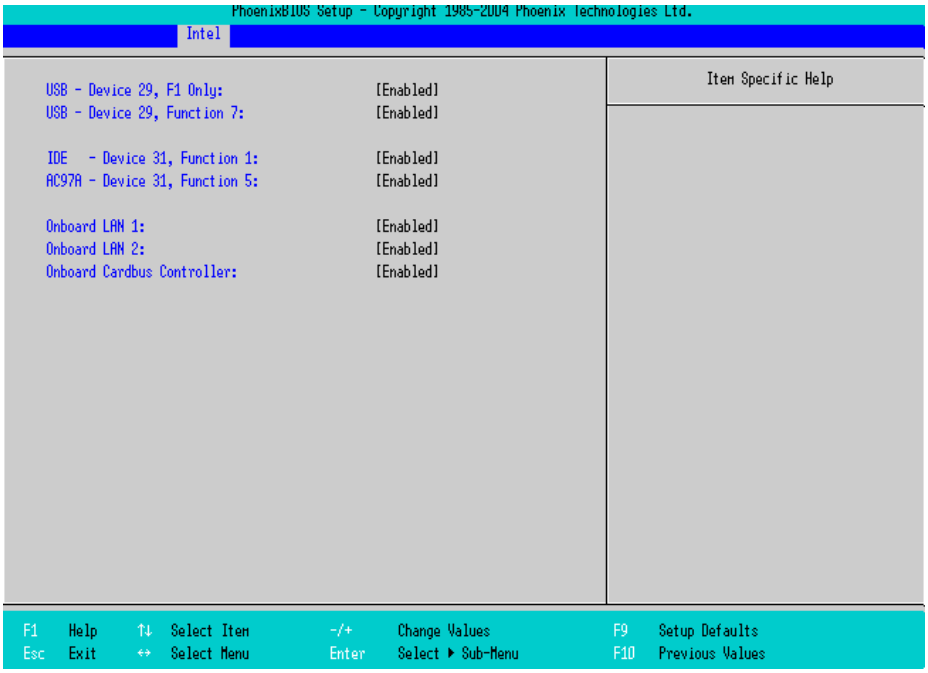
Specifies whether the CPU needs power saving in the Standby mode for Windows®. The choice is [Enabled] or [Disabled]. The factory default setting is [Disabled].

PCI Clock Run

Specifies an enabled/disabled state for the usage of PCI Clock Run Protocol for the Card Bus Controller. The choice is [Enabled] or [Disabled]. The factory default setting is [Disabled].

◆ Integrated Device Control Sub-Menu

Point the cursor to the [Integrated Device Control Sub-Menu] from the [ICH Control Sub-Menu] on the [Intel] screen and press the [Enter] Key, so that the following screen will be displayed.


PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
Intel
USB - Device 29, F1 Only: [Enabled]
USB - Device 29, Function 7: [Enabled]
IDE - Device 31, Function 1: [Enabled]
AC97A - Device 31, Function 5: [Enabled]
Onboard LAN 1: [Enabled]
Onboard LAN 2: [Enabled]
Onboard Cardbus Controller: [Enabled]
Item Specific Help
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Previous Values

USB-Device 29, F1 only / USB-Device 29, Function 7

Specifies an enabled/disabled state for the USB device. The choice is [Enabled] or [Disabled]. The factory default setting is [Enabled].

IDE-Device 31, Function 1

Specifies an enabled/disabled state for the IDE device. The choice is [Enabled] or [Disabled]. The factory default setting is [Enabled].

AC97A-Device 31, Function 5

Specifies an enabled/disabled state for the AC97 Audio. The choice is [Enabled] or [Disabled]. The factory default setting is [Enabled].

Onboard LAN 1, 2

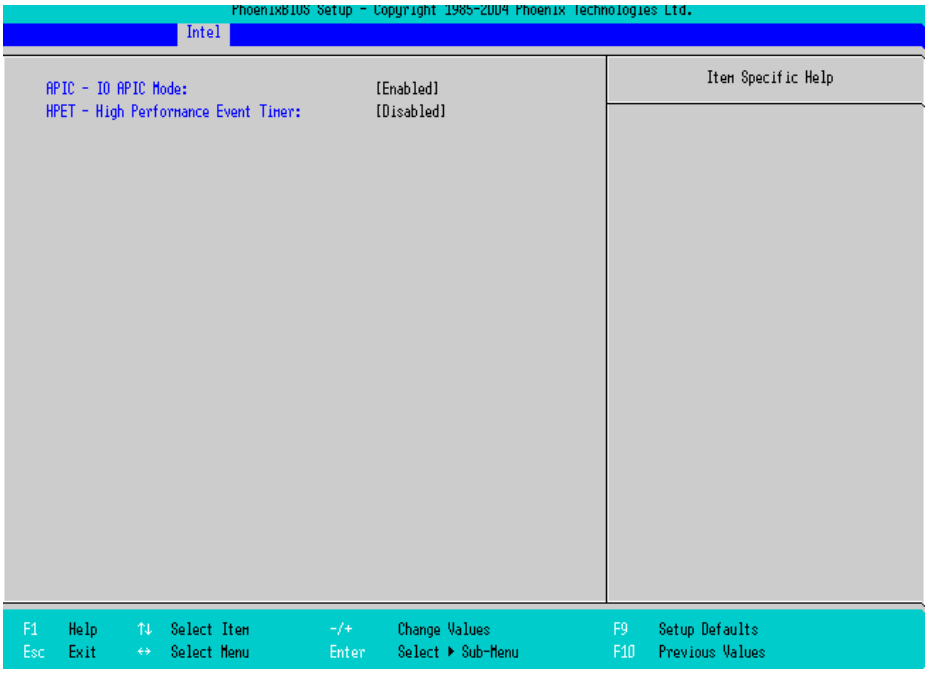
Specifies an enabled/disabled state for the Onboard LAN 1,2. The choice is [Enabled] or [Disabled]. The factory default setting is [Enabled].

Onboard Cardbus Controller

Specifies an enabled/disabled state for the PCMCIA Slot. The choice is [Enabled] or [Disabled]. The factory default setting is [Enabled].

■ACPI Control Sub-Menu

Point the cursor to the [ACPI Control Sub-Menu] on the [Intel] screen and press the [Enter] Key, so that this screen will be displayed.


PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
Intel
APIC - IO APIC Mode: [Enabled]
HPET - High Performance Event Timer: [Disabled]
Item Specific Help
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▶ Sub-Menu F10 Previous Values

ACPI-IO APIC Mode

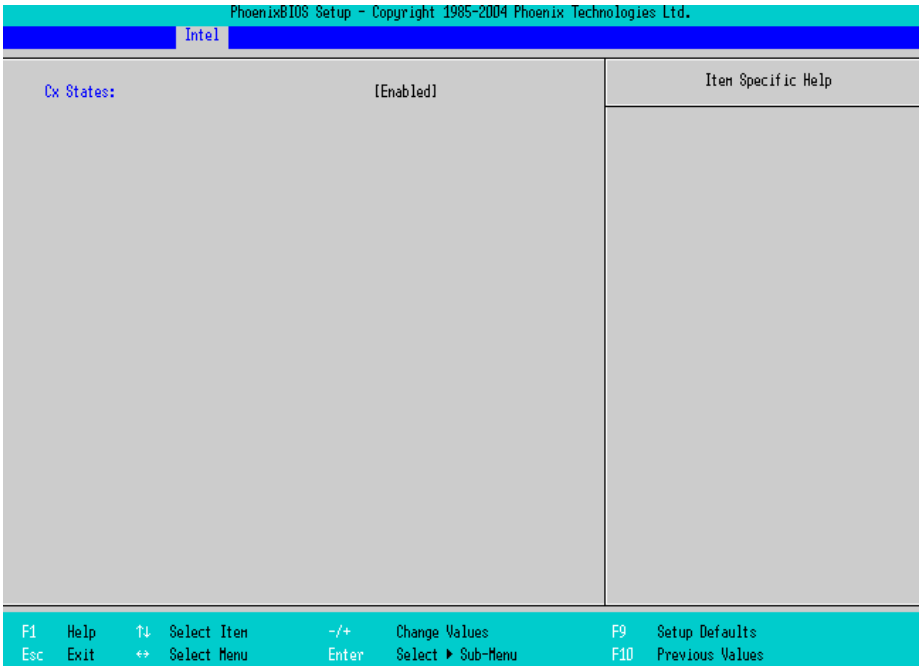
Specifies an enabled/disabled state for the APIC. The choice is [Enabled] or [Disabled]. The factory default setting is [Enabled].

HPET-High Performance Event Timer

Specifies the timer setting for the High Precision Event Timer. The choice is [Enabled] or [Disabled]. The factory default setting is [Disabled].

■APM Control Sub-Menu

Point the cursor to the [APM Control Sub-Menu] on the [Intel] screen and press the [Enter] Key, so that this screen will be displayed.

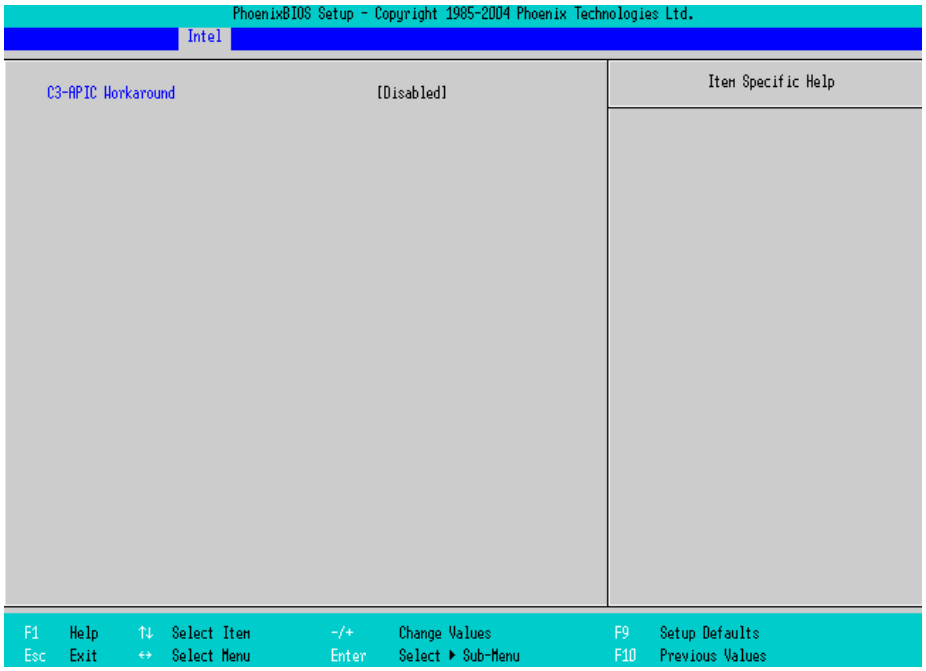

PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
Intel
Cx States:
[Enabled]
Item Specific Help
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▶ Sub-Menu F10 Previous Values

CX Status

Specifies whether you use a power saving state when using APM OS. The choice is [Enabled] or [Disabled]. The factory default setting is [Enabled].

■Workaround Control Sub-Menu

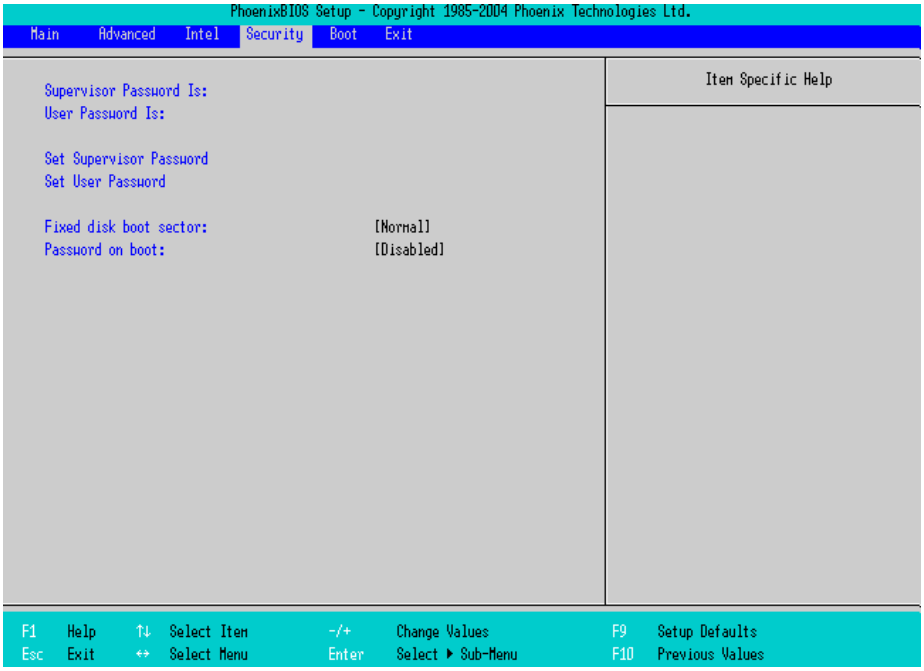
Point the cursor to the [Workaround Control Sub-Menu] on the [Intel] screen and press the [Enter] Key, so that this screen will be displayed.


PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
Intel
C3-APIC Workaround
[Disabled]
Item Specific Help
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Previous Values

C3-APIC Workaround

Select from [Enabled], [Auto], or [Disabled]. The factory default setting is [Enabled].

5.2.4 Security



Supervisor Password Is

Displayed as “Set“ when the password is set. Since no password has been set at factory, the factory default setting is [Clear].

User Password Is

Displayed as “Set“ when the password is set. Since no password has been set at factory, the factory default setting is [Clear]. Note that BIOS setting with a User Password is not allowed.

Set Supervisor Password / Set User Password

Specifies a password. When any password is not needed, do not input any values in the new password setting and press just the [Enter] key.

Fixed disk boot sector

Specifies whether writing into the boot sector on the hard disk is not allowed. Select from [Normal], [Write Protect], or [Protect]. The factory default setting is [Normal].

Password on boot

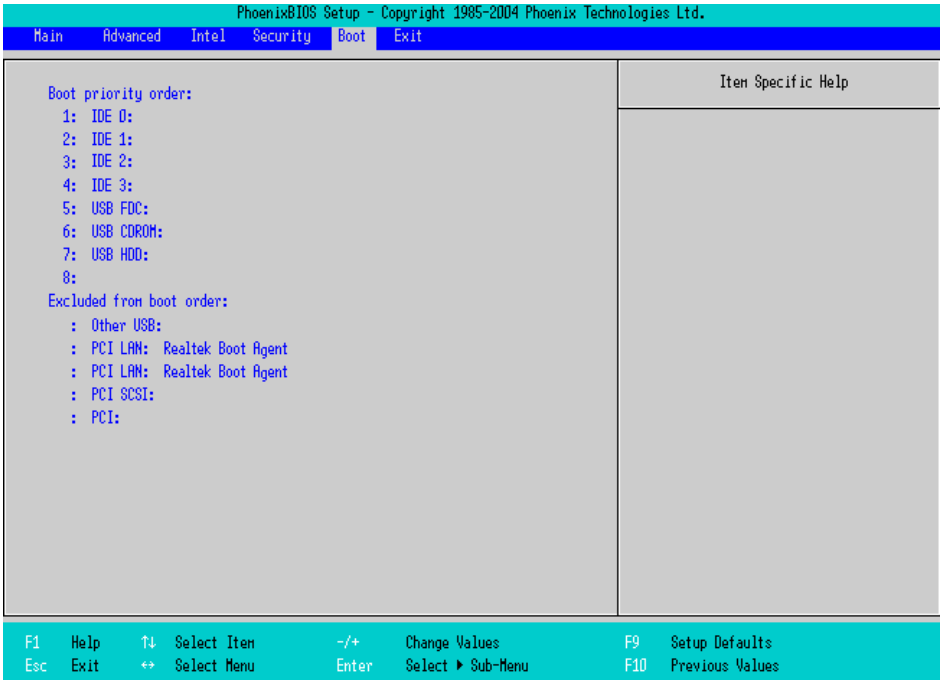
Specifies whether a password should be needed at the Start-Up. The choice is [Enabled] or [Disabled]. The factory default setting is [Disabled].

5.2.5 Boot

Specifies an order for boot-up devices. The boot-up devices are specified in the Boot priority order list and are searched for from the top of the list in sequence. By using the [+] or [-] keys, change its order. To change the device to be booted up, use the [x] key to move the device from the Boot priority order list to the Excluded from boot order list and vice versa.

NOTE

- When a new hard disk or commercial USB memory which does not require boot-up is connected and such a device is given high priority in the Boot priority order list, the system may not boot up properly. Be sure to check the order of the devices in the Boot priority order list after you connect a new device.



Boot priority order

Specifies the order of the boot-up devices. The factory default settings are as follows:

1:	IDE 0	: Primary Master Device
2:	IDE 1	: Primary Slave Device
3:	IDE 2	: Secondary Master Device
4:	IDE 3	: Secondary Slave Device
5:	USB FDC	: USB Floppy Disk Driver
6:	USB CDROM	: USB CDROM Driver
7:	USB HDD	: USB Memory, etc.
8:		

Exluded from boot order

:	Other USB	:	Other USB media
:	PCI LAN	:	LAN 1(10/100Base Ether) PXE Boot ROM
:	PCI LAN	:	LAN 2(GigaBit Ether) PXE Boot ROM
:	PCI SCSI	:	PCI SCSI Board
:	PCI	:	Other PCI device

5.2.6 Exit

Exit Saving Changes

Point the cursor to the [Exit Saving Changes] on the [Exit] screen and press the [Enter] Key, the current configuration is saved and the setting procedure is ended.

Exit Discarding Changes

Point the cursor to the [Exit Discarding Changes] on the [Exit] screen and press the [Enter] Key, the current configuration is NOT saved but the setting procedure is ended.

Load Setup Defaults

Point the cursor to the [Load Setup Defaults] on the [Exit] screen and press the [Enter] Key, all of the current configuration is back to the factory default settings.

Discard Changes

Point the cursor to the [Discard Changes] on the [Exit] screen and press the [Enter] Key, the current modified configuration is canceled and the previous setting values are reloaded.

Save Changes

Point the cursor to the [Save Changes] on the [Exit] screen and press the [Enter] Key, the current configuration which you modified is saved.

Memo

6 Setting Up Software

1. Setting Up Your PL Unit
2. Installing Drivers
3. Special Application Program Features
4. Cautions When Using Windows®2000/Windows®XP

6.1 Setting Up Your PL Unit

There are two types of PL units. One has a hard disk with no pre-installed OS and the other has a hard disk with a pre-installed OS. Therefore, the setup procedures used will differ.

6.1.1 Setting Up an HDD with no Pre-installed OS

First, when you use a hard disk with no pre-installed OS, you will need to install either Windows®2000 or Windows®XP. You also need to install any required utility software.

■ Installing the HDD Unit

Check to see if a hard disk unit is installed in your PL unit. If it is not, install the “PL-HD240” (the HDD unit with no pre-installed OS) prior to going to the next step. For the installation method, refer to the Installation Guide that comes with the HDD unit with no pre-installed OS.

■ Setting Up HDD Unit System Information

Check to see if a hard disk unit is installed in your PL unit. If it is not, install the HDD unit with no pre-installed OS. After that, you will need to set up a variety of system information. Set up this information so that the system recognizes the newly-installed hard disk drive. For detailed setup procedures about the hard disk, refer to the Installation Guide that comes with the HDD unit with no pre-installed OS.

■ Setting Up the OS

Install your operating system. For the setup procedures about the OS, refer to that product's installation manual.

IMPORTANT

- Specify [Disabled] for the USB-Device29 and the Function7 of the BIOS when you install commercial Windows®, using a USB CD-ROM drive.

  SEE → ◆ *Integrated Device Control Sub-Menu (page5-26)*

- The PL unit supports Windows®2000 Service Pack 4 and Windows®XP Service Pack 2. The PL unit performance cannot be guaranteed when any other operating system is used.

■ Setting Up the PL Dedicated Software

(1) Download the necessary drivers and utility software from the Pro-face support site “Otasuke Pro!”

SEE → *URL http://www.pro-face.com/otasuke/*

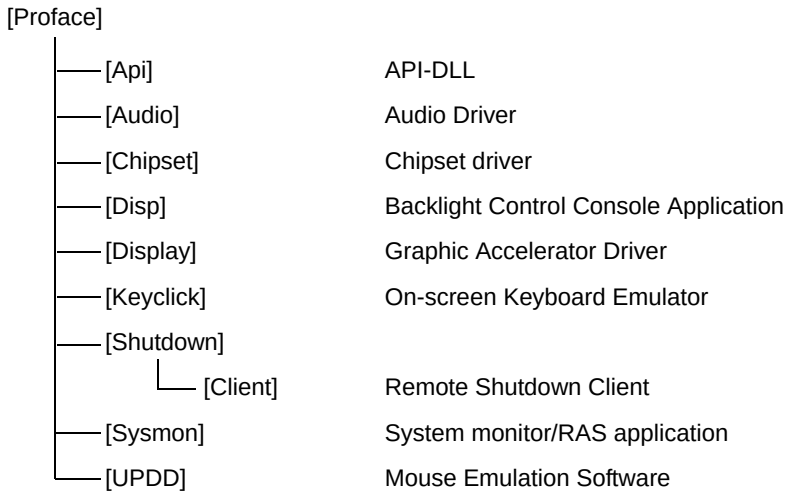
(2) Decompress the downloaded data, then the [Proface] folder has been created in drive C.

NOTE

- A USB keyboard is required to set up the PL.

◆ Proface Folder Contents (on PL hard disk)

When you set up the PL unit's utility software, the folder [Proface] will automatically be created on the C: drive. Inside that folder are the following programs.



NOTE

- The contents of the hard disk (shown above) may change, depending on the type of OS installed.
- When you set up the PL unit's utility software, you will find the Hardware control driver (Sysmon.sys) in your PL hard disk's system folder.

6.1.2 Setting Up an HDD with Pre-installed OS

Use the following steps to set up your PL unit's HDD unit, which contains the operating system of Windows®2000 or Windows®XP, related drivers and utility software.

NOTE

- Each pre-installed operating system on the hard disk in the PL unit is designed specially for the PL-6930/PL-7930 Series.

■ Installing the HDD Unit

After opening the PL unit's packing box, check that a hard disk unit is installed. If it is not, install an HDD unit with the pre-installed OS. For the installation method, refer to the Installation Guide that comes with the HDD unit with the pre-installed OS.

■ Setting Up the PL Unit's System Information

If your PL unit does not have a pre-installed HDD, you will need to install an HDD unit with the pre-installed OS and then configure that drive's system information. Be sure to check that the system successfully recognizes the drive. For detailed setup procedures about the hard disk, refer to the Installation Guide that comes with the HDD unit with the pre-installed OS.

■ Setting Up OS

Set up the Pre-installed OS in the PL unit. For the setup procedures about the OS, refer to the Installation Guide that comes with the HDD unit with the pre-installed OS.

◆ Hard Disk files

You will find a folder named "Proface" on your HDD unit (C: drive). The files found on that drive are as follows:

[Proface]	
[Api]	API-DLL
[Audio]	Audio Driver
[Chipset]	Chipset driver
[Disp]	Backlight Control Console Application
[Display]	Graphic Accelerator Driver
[Keyclick]	On-screen Keyboard Emulator
[Shutdown]	
[Client]	Remote Shutdown Client
[Setup]	Setup
[Sysmon]	System monitor/RAS application
[UPDD]	Mouse Emulation Software

NOTE

- The contents of the hard disk (shown above) may change, depending on the type of OS installed.
- In your PL hard disk's system folder, you will find the Hardware control driver (Sysmon.sys).

6.2 Installing Drivers

Four types of dedicated PL drivers (Audio, Chipset, Graphic Accelerator and Mouse Emulation Software) are available.

If your PL has no pre-installed OS, install the following drivers as required. (A PL unit that has been recovered using the Recovery CD-ROM will have all the required drivers installed).

The following explanation assumes the utility programs have been previously installed in the [Proface] folder on your PL unit's hard disk.

IMPORTANT

- Drivers set up manually cannot be uninstalled.

■ Installing the Audio Driver

Use the following explanation to install the Audio driver in your PL unit. Installing the Audio driver enables the Audio feature.

Double-click on the "WDM_A□□□.exe" file in Proface folder's "Audio" folder. ("□□□" indicate the driver version.) Follow the instructions given on the screen to install the driver.

C:\Proface\Audio\WDM_A□□□.exe

■ Installing the Chipset Driver

Use the following explanation to install the Chipset driver in your PL unit. Installing this driver incorporates the Chipset feature in your OS.

Double-click on the "infinst_autol.exe" file in your Proface folder's "Chipset" folder. Follow the instructions given on the screen to complete the installation.

C:\Proface\Chipset\infinst_autol.exe

■ Installing the Graphic Accelerator Driver

Use the following explanation to install the Graphic Accelerator driver in your PL unit. Installing this driver will speed up your PL unit's display under Windows®, using special hardware features.

(1) Start up the following file.

C:\Proface\Display\win2k_xp□□□.exe ("□□□" indicate the driver version.)

(2) Select [Next]-[Next]-[Yes]-[Exit], and then restart the system to complete the installation.

■ Installing the Mouse Emulation Software

Install the Touch Panel Driver.

(1) It is required to agree to “DMC Corporation Mouse Emulation Software (TSC-1310D/DD) Software License Agreement” beforehand.

SEE → *Appendices 4 Consent Agreement (pageA-5)*

(2) Start “C:\Proface\UPDD\Setup.exe” file.

(3) Follow the instructions given on the screen to install the Touch Panel Driver.

(4) Refer to “C:\Proface\UPDD\Readmee.pdf” for the rest, the details of the setting.

6.3 Special Application Program Features

The PL unit is equipped with the following special features. The special application programs are located in the following folders. It is assumed that the [Proface] folder has already existed on the hard disk of the PL unit here.

File Name	Windows®2000	Windows®XP
Blioctl.dll	C:\Winnt\System32	C:\Windows\System32
Ioctl.dll		
Backlight Control.scr		
Disp.exe	C:\Proface\Disp	
Keyclick.exe	C:\Proface\Keyclick	
SystemMonitor.exe	C:\Proface\Sysmon	
SmSRvCPL.cpl	C:\Windows\System32	C:\Winnt\System32
System Monitor Property	C:\Winnt\System32 / C:\Windows\System32	
Sysmon.sys	C:\Winnt\System32\Drivers	C:\Windows\System32\Drivers

■ API-DLL

This is a dynamic link library designed to provide access to the System BIOS'RAS feature for User applications. API-DLL consists of three types, which are explained below.

◆ Shared Memory Access (Smonras.dll)

This dynamic link library allows users to access shared memory via remote RAS features.

For details, refer to the following.

SEE → *7.4.4 Reading/Writing the Status of the System Monitor/RAS Feature (page7-20)*

◆ Backlight Control (Blioctl.dll)

This Blioctl.dll file provides a dynamic link library that allows User-created applications to utilize the PL-6930/PL-7930 series' backlight control feature. This file should be in the same folder as the User's application or in the System32 folder. For details, refer to the API reference.

◆ RAS Feature (Ioctl.dll)

This Ioctl.dll file provides a dynamic link library that allows User-created applications to utilize the PL-6930/PL-7930 series' System BIOS' RAS feature. This file should be in the same folder as the User's application or in the System32 folder. For details, refer to the API reference.

■ Backlight OFF Screen Saver (Backlight control.scr)

This software is used to turn OFF the PL's backlight after a specified period of inactivity. The use of this feature will help to extend the life of the PL's backlight. This program runs on Windows®.

NOTE

- Certain application programs may not allow the PL's backlight to turn OFF. Please test each program individually to check if the screen saver will operate correctly.

■ Backlight Control Console Application (DISP.EXE)

This command line utility is used to turn ON/OFF both the PL's backlight and display. This program runs on the command prompt.

Settings Used DISP ON ↵ or DISP OFF ↵

Option Switch ON: Displayed / OFF: Not Displayed

Return Value 0: Completed Normally / -1: Option Switch Error

IMPORTANT

- If your OS is Windows® and your application requires that the OS continuously turn the backlight display ON and OFF, be sure to use the backlight control Blioctl.dll.

■ Keyboard Emulator (Keyclick.exe)

This program allows the User's mouse operation to perform keyboard-like data input. When this program is executed on Windows®, a keyboard is displayed on the screen of the PL unit.
It is required to agree to "IN-fINITY soft Keyclick32 License Agreement".

SEE → *4 Consent Agreement (pageA-5)*

NOTE

- Certain application programs do not support this keyboard emulator. Please test each application individually to check if the keyboard emulator operates correctly.
- This application cannot be used to enter Windows® startup screen User Name and Password information.
- To change the Keyclick program's font size a keyboard is required.
- For details concerning the Keyclick program's operation, simply click on the HELP button of the keyboard on the screen to call up the program's online help data.

■ System Monitor/RAS Application (SystemMonitor.exe)

This utility provides monitoring of the PL's temperature, voltage level, and fan's operation, via the system BIOS' RAS and system monitoring functions. This program runs on Windows®.

◆ System Monitor Program (SystemMonitor.exe)

For details, refer to the following.

SEE → *7.2.2 Monitoring Operation (page7-10)*

◆ Monitor Parameter Setting Program (System Monitor Property)

For details, refer to the following.

SEE → *7.2.2 Monitoring Operation (page7-10)*

■ System File: Sysmon.sys

This system file allows use of the RAS and System Monitoring features. This file should not be modified. If it is modified, the RAS and System Monitoring features may not operate correctly.

■ Backlight Brightness Adjustment (BlBright.cpl)

Backlight brightness can be set to one of four levels: Level 0, Level 1, Level 2 or Level 3.

Brightness level 0: Very dark

Brightness level 1: Somewhat dark

Brightness level 2: Somewhat bright

Brightness level 3: Very bright

To use this program, when you use Windows®2000, click the [Control Panel]'s [Backlight Brightness] icon, and when you use Windows®XP, click the [Backlight Brightness] icon of the [Control Panel]'s [Appearance and Themes].

The default setting is Brightness level 3.

6.3.1 Uninstalling PL-X930 Driver and Utility

The PL's utility programs can be uninstalled using the following procedure.

(1) Click on the [Control Panel] icon.

(2) Select the [PL-X930 Driver and Utility] on the [Add/Remove Programs] and delete the utility programs.

IMPORTANT

- All drivers installed cannot be uninstalled.

6.4 Cautions When Using Windows®2000/Windows®XP

Perform the following settings as required by your OS.

6.4.1 Automatic System Log-on Setup

This setting allows users to skip password entry at startup.

■ When using Windows®2000

(1) Start the Control Panel's [Users and Passwords].

(2) Select an automatic log-on user and deselect the [Users must enter a user name and password to use this computer] checkbox.

(3) Click on the [Advanced] tab and deselect the [Require users to press Ctrl-Alt-Delete before logging on] checkbox.

(4) Click the [Apply] button and when the automatic login dialog box appears, enter your password.

■ When using Windows®XP

(1) Select [Run] from the [Start] screen.

(2) Enter "Control userpasswords2", and click [OK] button.

(3) Deselect the [User must enter the user name and password to use this computer] checkbox and click [Apply].

(4) Enter the user name and password for automatic logon and click [OK] button.

6.4.2 Using an Uninterrupted Power Supply

Prior to turning OFF the PL's power, be sure to shut down your OS (Windows®2000 or Windows®XP). It is recommended that an Uninterrupted Power Supply Device is used to prevent the accidental loss of User data, due to an unexpected power outage.

When using an Uninterrupted Power Supply (UPS), the unit can be set to switch to backup power, which will provide enough time to safely shut down your PL, or it can even shut down your PL for you.

For details, please consult your local dealer of UPS units.

6.4.3 When Changing the System Design

When the PL unit is connected to a printer or to a LAN network, the Windows® system settings must be changed.

◆ Changing the System Design

When the Windows® system configuration settings are changed, the following message appears. Enter the name of the folder where you will save the configuration changes and click [OK].

- Insert the CD labeled "Windows® xx*1 Professional CD-ROM" in the CD-ROM drive (D:), and click [OK].
- When copying the file from other locations such as network server, also click the [OK] button.

- When Your PL has No Pre-installed OS

  Double-click the [I386] folder in the Windows® CD-ROM.

  D:\I386 (When the CD-ROM drive is “D”)
- When Your PL has a Pre-installed OS

  C:\Proface\Setup\I386

6.4.4 Changing to the NTFS File System

If your OS is formatted with the Windows® DOS-compatible file system (FAT32), it can be converted to the NTFS file system.

To convert to the NTFS file system, start up Windows® and use the command prompt.

convert x:/fs:ntfs (Replace “X” with your drive name.)

NOTE

- Once the file system is converted to the NTFS file system, it cannot be converted back to the Windows® DOS-compatible file system (FAT32).
- In OS pre-install type, the NTFS file system is used.

*1 “xx” is your OS.

Example) When using Windows® XP: “Windows XP Professional CD-ROM”

7 PL Monitoring Features

1. RAS Features
2. Monitoring the PL Status
3. Checking the Error Log List
4. Restarting/Shutting down the PL from the Server

This chapter describes various ways to monitor the status of the PL.

7.1 RAS Features

7.1.1 RAS Features

RAS, which stands for Reliability, Availability, and Serviceability, is a device-level monitoring function that provides a variety of features to improve the reliability of your PL system.

Though the standard set of RAS features used will vary depending on the devices used, the following features are used to provide Alarm Monitoring and External Input Signal support.

Alarm Monitoring	Power Voltage Alarm Cooling Fan RPM Alarm Internal Temperature Alarm Watchdog Timer Timeup Touch Panel Alarm Backlight Alarm SMART Alarm
External Input Signal	General Purpose Signal Input *1 (DIN 4-bit) Remote Reset Input *2(1 lamp)

*1: General Purpose Signal Input will maintain Input Information.

*2: The remote reset feature's input can be either enabled or disabled, however, the setting of DOUT output state cannot be set to trigger a forced system reset.

IMPORTANT • General Purpose Signal Input (DIN) level must be 1.5S or longer to be detected.

Also, when either the one of the above mentioned alarm occurs, or an external signal input is received, the following types of alarm processing output signals and features are supported by the PL.

External Output Signal	General Purpose Signal Output (DOUT 4-bit)
Various Processing Functions	LED Indicator (2 colors, 1 lamp) Pop-up Message Output Buzzer Output System Shutdown System Reset

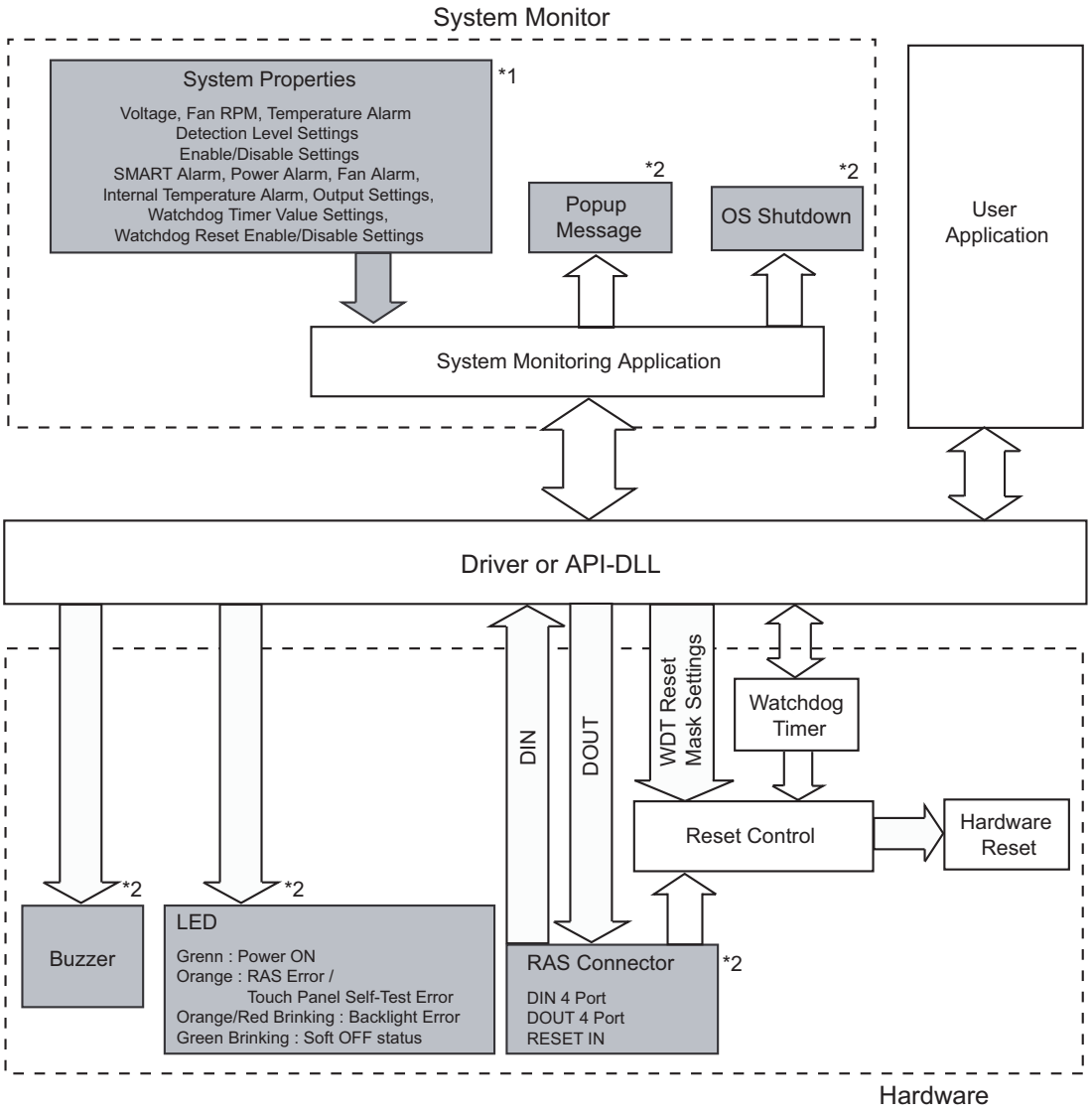
Use the included System Monitor feature (utility software) to enable/disable the monitoring features and to set the alarm processing details.

SEE → *7.2 Monitoring the PL Status (page7-8)*

In addition, you can use the included dynamic link library (API-DLL) to access the RAS features from user-created applications.

SEE → *Otasuke Pro! "PL-X930 Series API Reference Manual"*
URL http://www.pro-face.com/otasuke/

■ RAS Feature Overview



*1 Be sure to adjust these settings according to your system's specifications.

SEE→ *7.2 Monitoring the PL Status (page7-8)*

*2 Output via the RAS feature.

■ Errors which can be Detected by RAS Features

◆ Power Voltage Alarm

Monitors the status of the PL unit's built-in power supply and internal CPU power supply.

◆ Cooling Fan Rotation Alarm

Monitors the CPU cooling fan and electric fan RPM speeds.

◆ Internal Temperature Alarm

Monitors the internal temperature of the PL unit and the ambient temperature of the CPU.

Configure the settings via [System Setup] to enable/disable individual monitoring features, and the monitoring levels for voltage, fan and temperature. After that, enable/disable individual monitoring features via the System Monitor feature.

◆ Watchdog Timer Timeup

This feature monitors the performance of the CPU by writing the CPU's time-up count value to the RAS feature's built-in programmable timer and by periodically clearing the count value from the CPU. Errors are detected when the clearing of the count value from the CPU stops, which will cause a timer overflow.

Use the System Monitor Property area to set the Watchdog Timer Timeup ON or OFF, and enter detailed error processing settings. For the method for using the Watchdog Timer from a user application, refer to the API Reference which can be downloaded from the Pro-face support site "Otasuke Pro!".

◆ Touch Panel Alarm

Detects Touch Panel alarms. When an alarm occurs, the LED will turn orange.

◆ Backlight Alarm

Detects Backlight alarms. When the backlight burns out, the LED will flash orange/red.

◆ SMART Alarm

Monitors the status of the hard disk. Detects a warning of trouble of the hard disk.

IMPORTANT

- A CF card doesn't support SMART and therefore the status of the CF card cannot be monitored.
- When a hard disk except options made by Pro-face is used, the operation of SMART Monitoring cannot be guaranteed.

■ Error Notification

The method for notifying or handling errors can be selected from the following:

◆ LED Indicator

The three-color LED is used to indicate the PL system conditions. It is also used as a power ON/OFF indicator. The LED is located on the front face of the PL unit.

LED Color	System Status	output condition
Green (Lit)	Normal Operation (Power is ON)	None
Green (Blinking)	System is NOT running (Soft OFF)	None
Orange (Lit)	A RAS alarm has occurred.	LED is enabled via System Monitor Property.
	Touch Panel Self -Test Error	None
Orange/Red (Blinking)	Backlight is not functioning.	None
Not Lit	Power is OFF	-

NOTE

- Immediately after the PL unit's power is turned ON, if the orange LED lights, a Touch Panel Self-Test Error may have occurred.
- A Touch Panel Self-Test Error indicates that the touch panel is faulty. Please contact your local PL distributor.

◆ Pop-up Message Output

This feature displays system status via a Windows® pop-up message.

System Monitor Property is used to enable or disable this feature.

◆ Buzzer Output

This feature uses the PL unit's built-in speaker to alert the operator about the PL system status.

System Monitor Property is used to enable or disable this feature.

◆ System Shutdown

This feature shuts down the PL unit's OS.

System Monitor Property is used to enable or disable this feature.

◆ System Reset

This feature resets the system when the Watchdog Timer reaches "time up".

System Monitor Property is used to enable or disable this feature.

■ External Input Signals

The PL's RAS interface connector uses the following input signals.

◆ General Purpose Signal Input (DIN 4 bits)

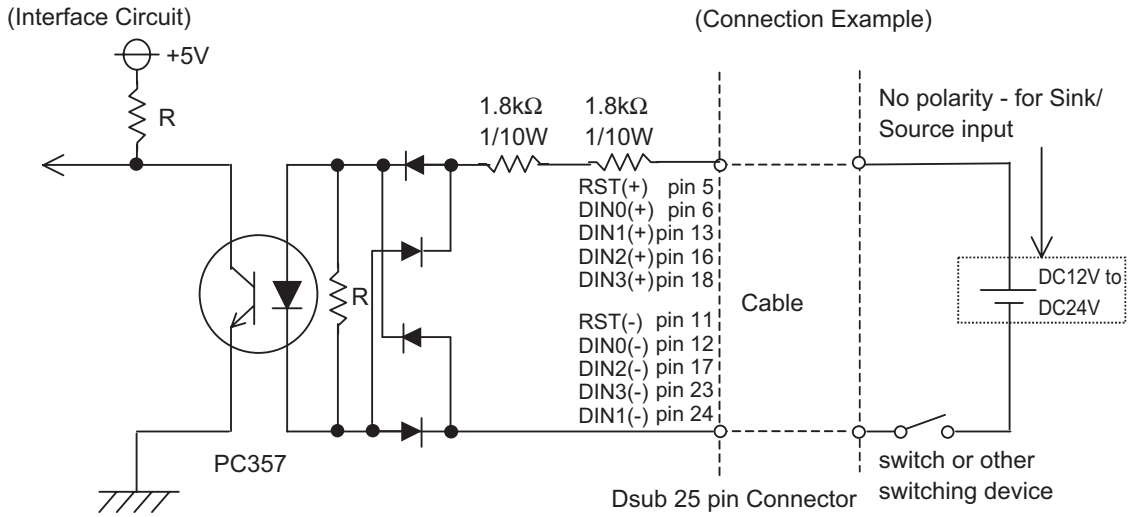
This standard digital input is used for alarm detection in external devices. The input signal uses four bits. The System Monitor property of the control panel or the API-DLL can be used to enable or disable this feature, as well as designate what type of processing is to be performed once a signal is received. (Only the "ON" state of the DIN circuit is detected. The "OFF" state of the DIN circuit cannot be monitored.)

◆ Remote Reset Input

This is the reset signal sent from an external device to the PL. When this signal is enabled, a forced reset of the PL is performed.

The System Monitor property of the control panel or the API-DLL can be used to enable or disable this feature.

Input Voltage	DC12V to DC24V
Input Current	7mA
Operating Voltage	ON voltage: 9V (min), OFF voltage:3V (max)
Isolation Method	Via photocoupler



IMPORTANT

- General Purpose Signal Input (DIN) level must be 1.5S or longer to be detected.
- Be sure the voltage value between terminals is controlled via the input voltage, so that the PL is operated within its recommended range. If the input voltage exceeds this range, a malfunction or PL damage may occur.
- With Sink/Source input, even if the D(-), and RESET(-) are positive, and D(+), RESET(+) are negative, no problems are created. Be sure to operate the unit within the recommended voltage range.

NOTE

- For connection pin location details,

SEE → *2.3.2 RAS Interface (page2-14)*

■ External Output Signal

The PL's RAS interface connector uses the following output signals.

◆ General Purpose Signal Output (DOUT 4 bits)

This general purpose digital output signal provides system condition information to external devices.

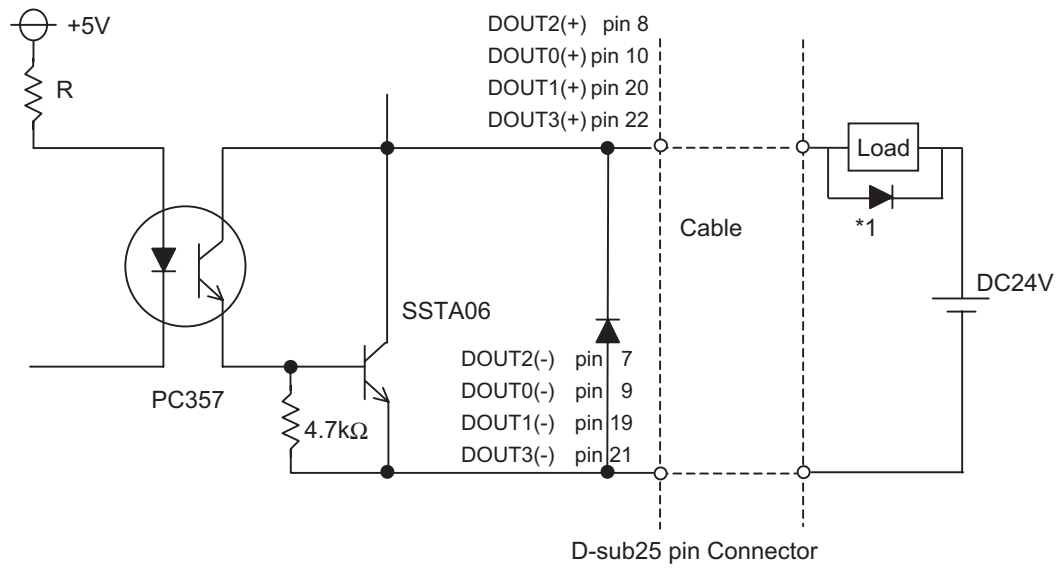
The System Monitor property of the control panel or the API-DLL is used by applications to control this signal.

The above mentioned general purpose digital output signals provide system condition information to external devices.

The System Monitor property can be used to enable or disable any of these output signals.

Rated Load Voltage	DC24V
Maximum Load Current	100mA/point
Maximum Voltage Drop between Terminals	1.5V (at 100mA load current)
Isolation Method	Via photocoupler

(Interface Circuit) (Connection Example)



IMPORTANT

- Be sure to operate the unit within its maximum load current. If the maximum load current exceeds this range, a malfunction or PL damage may occur.
- Design your electrical system by adding the load current and voltage values to the terminal voltage. If load current value used is large, the voltage drop of 1.5V or less will occur between the terminals.
- When connecting an induction load, be sure to connect the above drawing's protection diode (*1).

NOTE

- For connection pin location details,

SEE→ *2.3.2 RAS Interface (page2-14)*

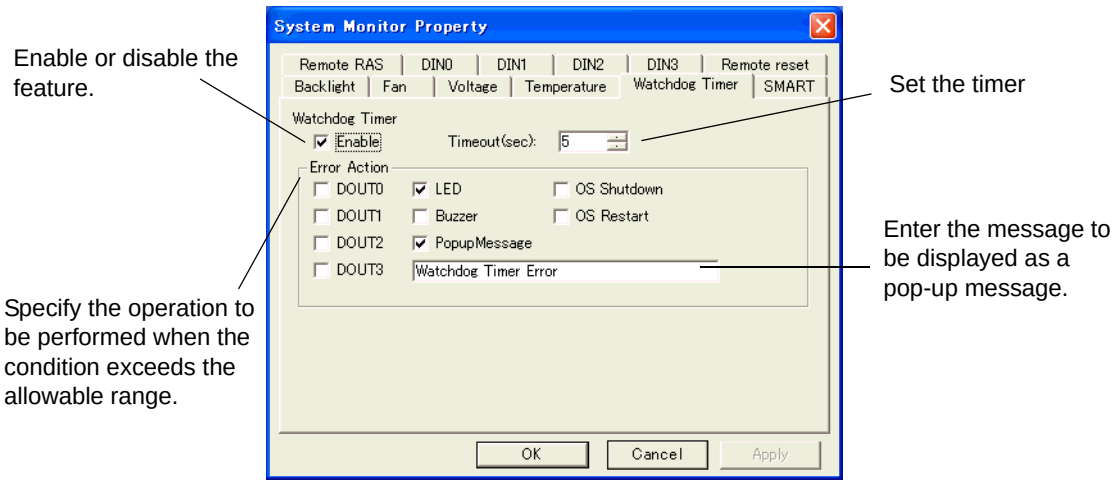
7.2 Monitoring the PL Status

7.2.1 Setup Procedures

Double-click [System Monitor Property] in [Control Panel] to display the System Monitor Property screen.

NOTE

- You can also display the System Monitor Property screen by selecting [Start] -> [Program] -> [System Monitor].



Set the actions when the allowable range for the preset monitoring features is exceeded (when an error occurs).

The following table lists the description of each action.

Item	Operation
Buzzer	Sounds a beep as an alarm. (Cannot be set up when a checkmark is put in the “OS Shutdown” checkbox.
Pop-up Message	Displays error messages as pop-up messages. (The monitoring item and description of the error are displayed.)
OS Shutdown	Shuts down the operating system. (The shutdown confirmation message is not displayed.)
OS Restart	Resets the hardware.
Enable	Select or deselect this option to enable or disable each setting of the monitoring feature.
LED	The front LED lights orange/red.
DOUT0 to 3	Output from the RAS port.

The following table lists the operating settings that can be configured for each feature.

O: Setting available X: Setting not available

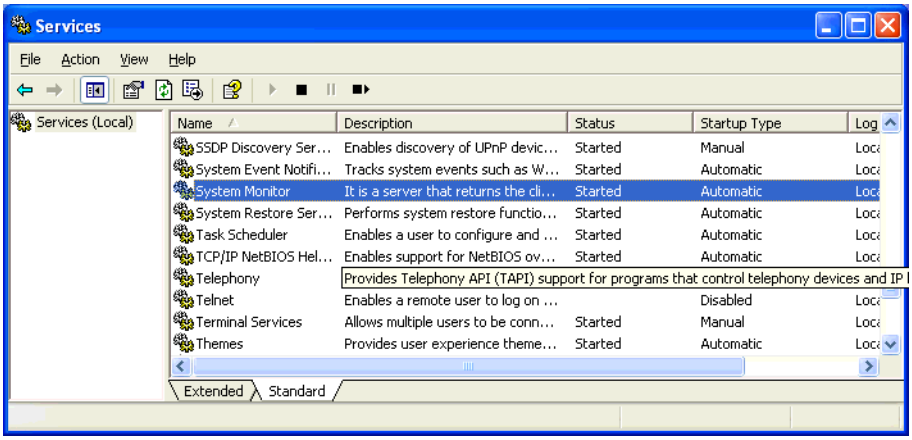
Feature	Operation					
	Buzzer	Popup Message	OS Shutdown	Reset	LED	DOUT0 to 3
Watchdog Timer	O	O	O	O	O	O
Voltage	O	O	O	X	O	O
Fan	O	O	O	X	O	O
Temperature	O	O	O	X	O	O
Backlight	O	O	X	X	O	O
SMART	O	O	X	X	O	O
DIN0 to 3	O	O	O	X	O	O

IMPORTANT

- Administrator Authentication is required for executing SMART Monitoring. When a user who does not have the administrator authentication logs in, nothing is displayed in the item of SMART.

NOTE

- System Monitor also operates as Windows's Services. When System Monitor applications do not start, the System Monitor Service execute the RAS events setup in the System Monitor Property. You can check the System Monitor Service's operation state by selecting [Control Panel] -> [Administrative Tools] -> [Services].



- The pop-up message displayed when the System Monitor Service detects an error differs from ordinary ones.

7.2.2 Monitoring Operation

When you start monitoring, you can check the operating status of the PL on the System Monitor screen.

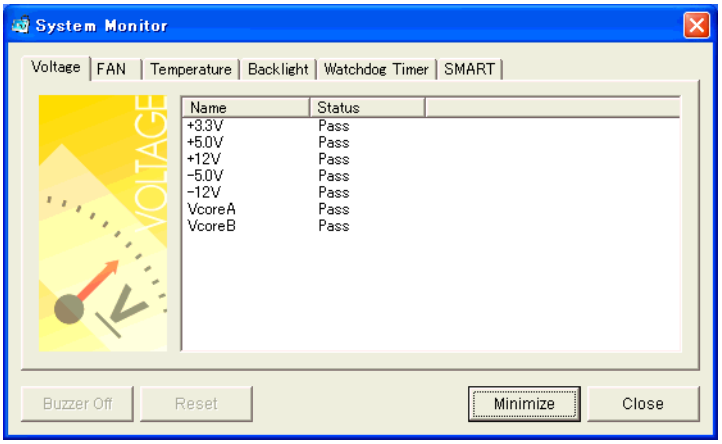
■ System Monitor Screen

When you start up the System Monitor, the System Monitor screen is not displayed immediately but its icon appears in the System Tray in the taskbar.

When you double-click the system monitor icon in the taskbar, the System Monitor screen is displayed.

NOTE

- You can also display the System Monitor screen by selecting [Start] -> [Program] -> [System Monitor].



To see the status of each item, select the corresponding tab. When an error occurs the color of the tab changes.

NOTE

- As for Device No. of SMART, [0] means Primary Master and [1] means Secondary Slave.

The System Monitor screen displays the status of the monitoring items of “FAN/TEMP/VOLTAGE/BACK-LIGHT/SMART”. The following table lists the status to be displayed.

Display	Meaning
Pass	Normal
Fail	Abnormal
Disable	Monitoring disabled
Not Support	Not support

NOTE

- [Not Support] is displayed when a device like a CF card, which does not support SMART, is detected.

There are buttons: [Buzzer Off], [Reset], [Minimize], and [Close], located at the bottom of the System Monitor screen.

Button	Operation
Buzzer Off	Stops the buzzer sound at normal operations.
Reset	Clears the error condition held at normal operations and inside the System Monitor.
Minimize	Minimizes the System Monitor into the icon display.
Close	Closes the System Monitor.

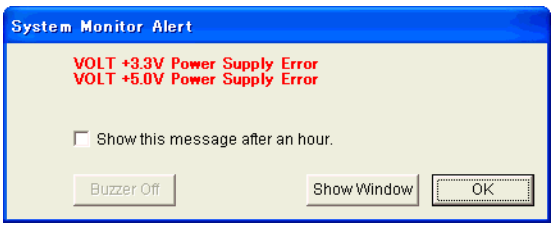
■ When an Error is Detected

When an error is detected, the System Monitor operates as follows:

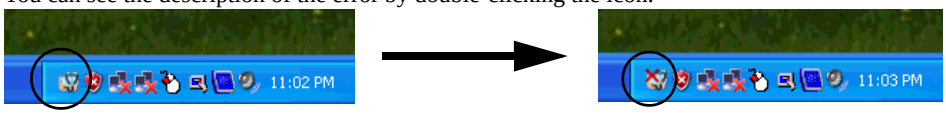
(1) It activates the action which has been specified in the System Monitor Property screen, such as a buzzer or pop-up message output.

NOTE

- The Error Action is performed only one time when an error is detected for each monitoring item.
- When the buzzer feature is enabled, press the [Buzzer Off] button on the pop-up message to stop the buzzer sound.
  When the buzzer sounds as an Error Action, the System Monitor screen displays the [Buzzer Off] button that is hidden under normal conditions. When a pop-up message window is displayed, the [Buzzer Off] button appears on the window.



(2) An "×" mark appears on the icon in the System Tray, which indicates an error status, and the icon blinks. You can see the description of the error by double-clicking the icon.



Icon display on start-ups　　Icon display when an error is detected.

IMPORTANT

- Once an error is detected, the System Monitor holds the "error" status. (Icon display indicating error detection) To recover from the error status, press the [Reset] button on the System Monitor screen or turn off the PL. After that, perform maintenance service for removing the cause of the error factor, and then turn on the power again.

7.2.3 Error Messages

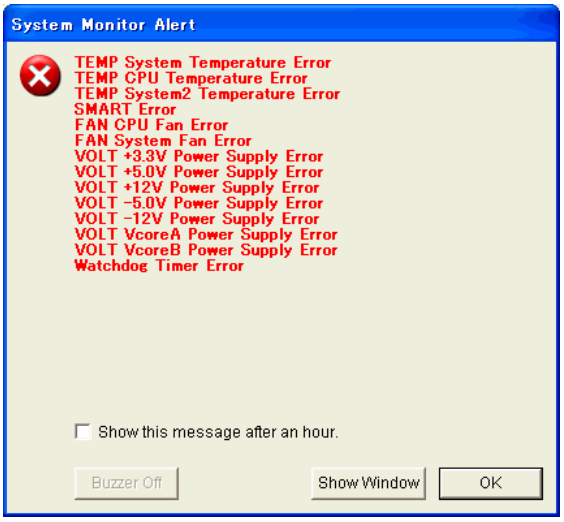
This section describes the error messages and closing messages displayed on the System Monitor and System Monitor Property screens.

■ System Monitor

◆ Alarm Pop-up Messages

When an error occurs while the “Popup Message” option is enabled for Error Action, the following messages appear on the pop-up message output screen under the factory settings.

Error Type	Message
Voltage VcoreA	VOLT VcoreA Power Supply Error
Voltage VcoreB	VOLT VcoreB Power Supply Error
Voltage +3.3V	VOLT +3.3V Power Supply Error
Voltage +5.0V	VOLT +5.0V Power Supply Error
Voltage +12.0V	VOLT +12V Power Supply Error
Voltage -5.0V	VOLT -5.0V Power Supply Error
Voltage -12.0V	VOLT -12V Power Supply Error
CPU FAN	FAN CPU Fan Error
System FAN	FAN System Fan Error
Temperature CPU	TEMP CPU Temperature Error
Temperature System	TEMP System Temperature Error
Temperature System2	TEMP System2 Temperature Error
DIN0	DIN0 Error
DIN1	DIN1 Error
DIN2	DIN2 Error
DIN3	DIN3 Error
Watchdog	Watchdog Timer Error
Backlight	Backlight Blowout Error
SMART	SMART Error

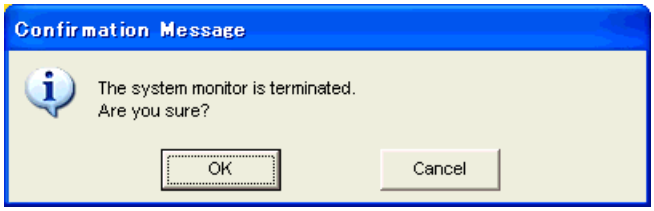


NOTE

- The messages displayed on the pop-up message output screen can be modified on the System Monitor Property screen.

SEE→ *7.2.1 Setup Procedures (page7-8)*

◆ Shutdown Confirmation Message



■ System Monitor Property Screen

◆ Shutdown Confirmation Message

7.3 Checking the Error Log List

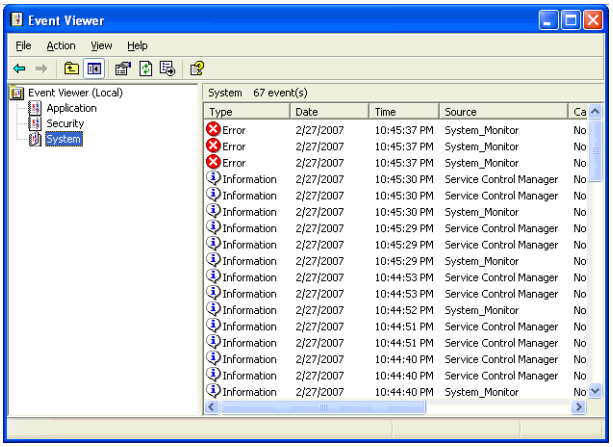
Error type/location and error actions are recorded as error events in the System Log. Error event information can be checked using the Event Viewer.

NOTE

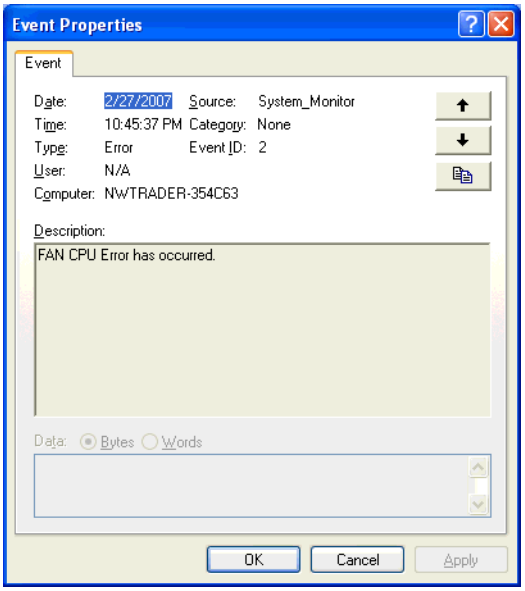
- This feature can be used with Windows® 2000 and Windows® XP.

7.3.1 Error Message Display

(1) Start the [Control Panel] -> the [Administrative Tools] -> the [Event Viewer], and select the [System Log].


Event Viewer
File Action View Help
Event Viewer (Local)
Application
Security
System
System 67 event(s)
Type Date Time Source Ca
Error 2/27/2007 10:45:37 PM System_Monitor No
Error 2/27/2007 10:45:37 PM System_Monitor No
Error 2/27/2007 10:45:37 PM System_Monitor No
Information 2/27/2007 10:45:30 PM Service Control Manager No
Information 2/27/2007 10:45:30 PM Service Control Manager No
Information 2/27/2007 10:45:30 PM System_Monitor No
Information 2/27/2007 10:45:29 PM Service Control Manager No
Information 2/27/2007 10:45:29 PM Service Control Manager No
Information 2/27/2007 10:45:29 PM System_Monitor No
Information 2/27/2007 10:44:53 PM Service Control Manager No
Information 2/27/2007 10:44:53 PM Service Control Manager No
Information 2/27/2007 10:44:52 PM System_Monitor No
Information 2/27/2007 10:44:51 PM Service Control Manager No
Information 2/27/2007 10:44:51 PM Service Control Manager No
Information 2/27/2007 10:44:40 PM Service Control Manager No
Information 2/27/2007 10:44:40 PM Service Control Manager No
Information 2/27/2007 10:44:40 PM System_Monitor No

(2) Select the System Monitor's error and click the [Properties] icon. When the [Event Properties] dialog box appears, the error message will appear in the [Description] area.



NOTE

- OS Restart from a Watch Dog Timer Error and the reset input for the RAS port cannot be logged.

7.3.2 Error Type/Location and Error Action

■ Error Type/Location

The error types/locations shown by the Event Viewer are as follows.

Error Type	Message
Voltage VcoreA	VOLT VcoreA Error has occurred.
Voltage VcoreB	VOLT VcoreB Error has occurred.
Voltage +3.3V	VOLT +3.3V Error has occurred.
Voltage +5.0V	VOLT +5.0V Error has occurred.
Voltage +12.0V	VOLT +12V Error has occurred.
Voltage -5.0V	VOLT -5.0V Error has occurred.
Voltage -12.0V	VOLT -12V Error has occurred.
CPU FAN	FAN CPU Error has occurred.
System FAN	FAN System Error has occurred.
Temperature CPU	TEMP CPU Error has occurred.
Temperature System	TEMP System Error has occurred.
Temperature System2	TEMP System2 Error has occurred.
DIN0	DIN0 Error has occurred.
DIN1	DIN1 Error has occurred.
DIN2	DIN2 Error has occurred.
DIN3	DIN3 Error has occurred.
Watchdog	Watchdog Timer Error has occurred.
Backlight	Backlight Error has occurred.
SMART	SMART Error has occurred. Attribute (No.)(Attribute Name) Device (No.)(HD Model). The descriptions in the parentheses vary depending on details of occurring errors and the device where errors occur (0:Master, 1:Slave)

■ Error Action

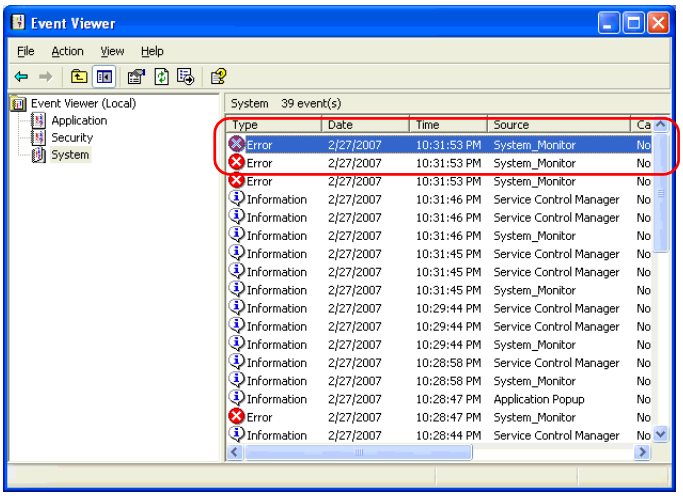
Using the Eveint Viewer the following actions can be taken when an error occurs

NOTE

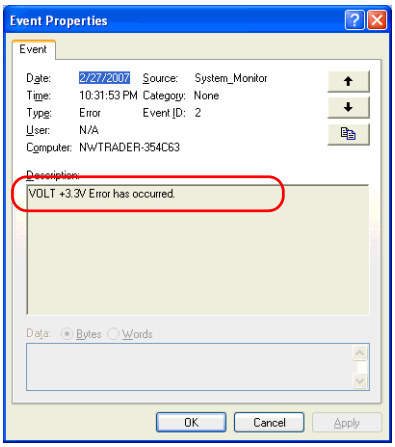
- The data shown in the table's "□□" indicate the error type/location.
- The actions to be taken after an error occurs are set via the System Monitor Property screen.

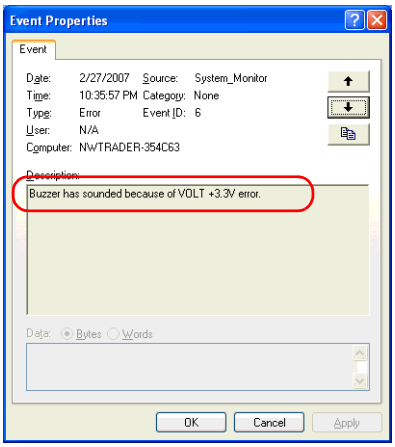
Error Action	Error Message
Buzzer	Buzzer has sounded because of ☐☐ error.
Popup Message	Popup Message has been shown because of ☐☐ error.
OS Shutdown	Window has been shut down because of ☐☐ error.
DOUT0	DOUT0 has output because of ☐☐ error.
DOUT1	DOUT1 has output because of ☐☐ error.
DOUT2	DOUT2 has output because of ☐☐ error.
DOUT3	DOUT3 has output because of ☐☐ error.

When a “+3.3V” error occurs and the buzzer sounds, two errors will be displayed by the Event Viewer, “+3.3V Error has occurred.” and “Buzzer has sounded because of +3.3V error”.


Event Viewer
File Action View Help
Event Viewer (Local)
Application
Security
System
System 39 event(s)
Type Date Time Source Ca
Error 2/27/2007 10:31:53 PM System_Monitor No
Error 2/27/2007 10:31:53 PM System_Monitor No
Error 2/27/2007 10:31:53 PM System_Monitor No
Information 2/27/2007 10:31:46 PM Service Control Manager No
Information 2/27/2007 10:31:46 PM Service Control Manager No
Information 2/27/2007 10:31:46 PM System_Monitor No
Information 2/27/2007 10:31:45 PM Service Control Manager No
Information 2/27/2007 10:31:45 PM Service Control Manager No
Information 2/27/2007 10:31:45 PM System_Monitor No
Information 2/27/2007 10:29:44 PM Service Control Manager No
Information 2/27/2007 10:29:44 PM Service Control Manager No
Information 2/27/2007 10:29:44 PM System_Monitor No
Information 2/27/2007 10:28:58 PM Service Control Manager No
Information 2/27/2007 10:28:58 PM System_Monitor No
Information 2/27/2007 10:28:47 PM Application Popup No
Error 2/27/2007 10:28:47 PM System_Monitor No
Information 2/27/2007 10:28:44 PM Service Control Manager No

Double-clicking these error events opens the following screens respectively.





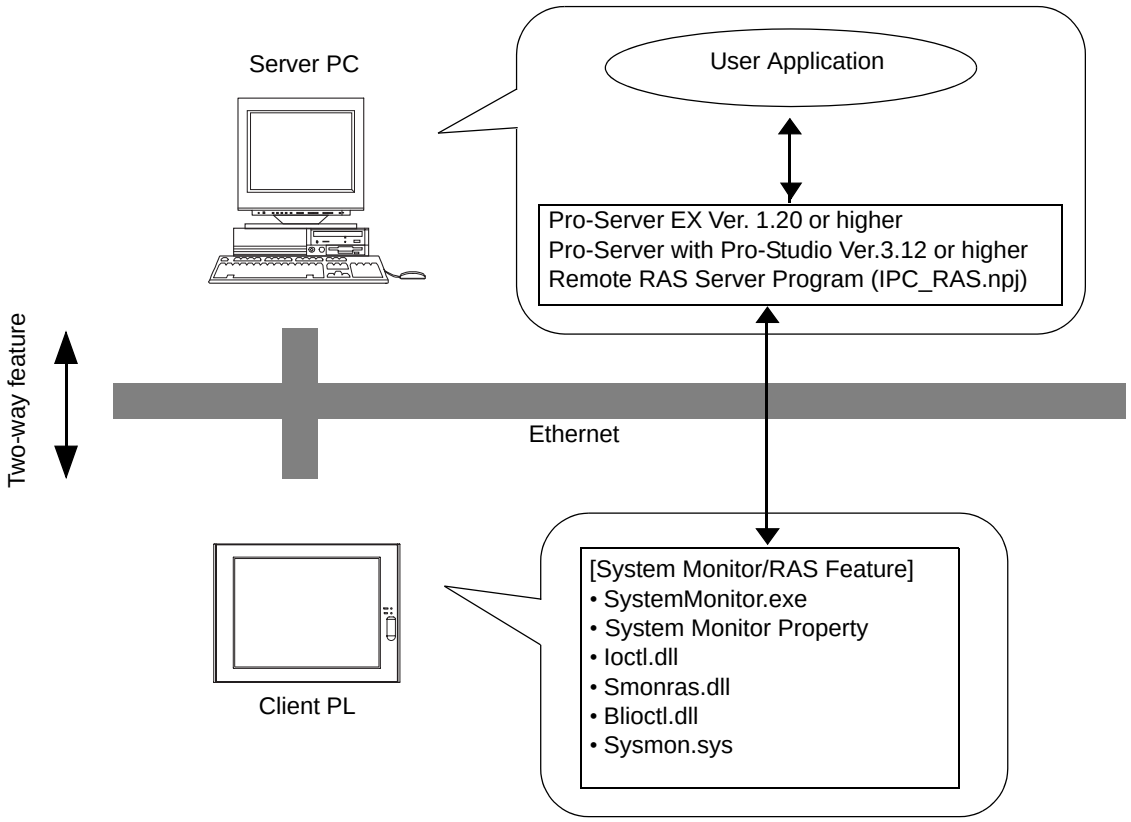
7.4 Monitoring the PL Status from the Server

The Remote RAS feature uses the Pro-Server EX (optional) or the Pro-face's Pro-Server with Pro-Studio (optional) installed in the host PC to monitor and control the System Monitor/RAS feature of the PL.

The Pro-Server EX Ver. 1.20 or higher or the Pro-Server with Pro-Studio Ver.3.12 or higher is required to use the Remote RAS feature. When using this feature, refer to the installation guides provided with the Pro-Server as well as this manual.

7.4.1 System Configuration

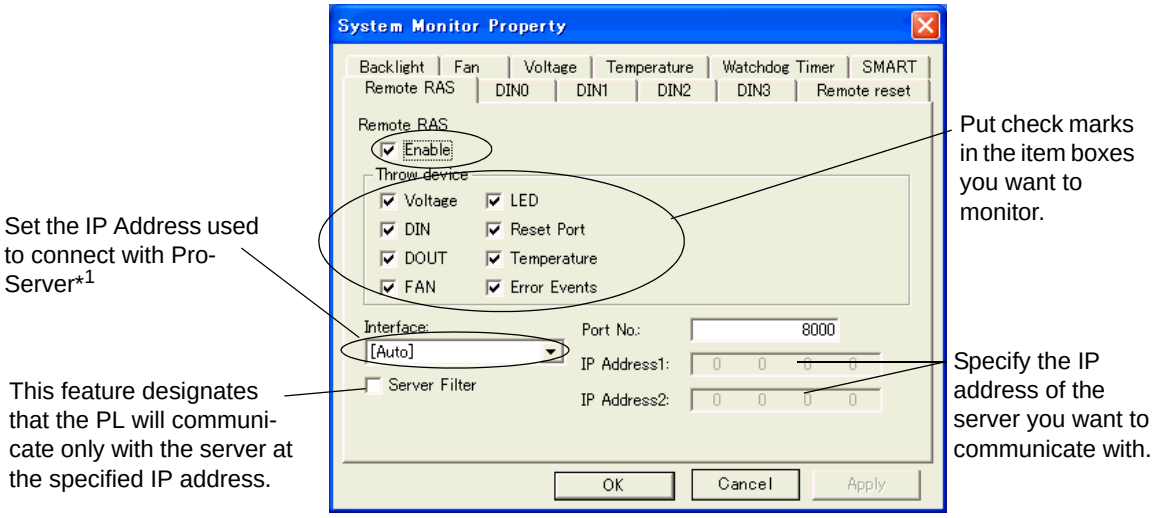
The system employing this feature is configured as illustrated below.



7.4.2 Setting Up the Client PL

(1) Start the [System Monitor Property] -> [Control Panel].

(2) On the [Remote RAS] tab, put a check mark in the [Enable] checkbox.



The Remote RAS feature is now enabled.

NOTE

- In order to actually activate the Remote RAS feature, you are required to start up the System Monitor (SystemMonitor.exe) within the PL.

*1 When 2 or more IP Addresses are allocated to the PL unit, the [Auto] cannot be selected. Enter settings that allow the reading of a fixed IP Address from a DHCP server. For details, contact your company's network administrator for getting the detailed information.

7.4.3 Setting Up the Server PC

(1) On the server PC, download the software from the Pro-face support site “Otasuke Pro!”. Follow the attached instructions to copy the downloaded file to the designated file.

(2) Start up the Pro-Studio.

(3) Register the PL you want to include in the network to the network station, and edit the participant stations.

SEE → *Pro-Server with Pro-Studio for Windows Operation Manual*
Pro-Server EX Reference Manual

NOTE

- When using the Pro-studio’s [Find Stations] command to register the PL to the network station, the System Monitor should be activated with the Remote RAS feature enabled in the PL.

(4) Select [PL, PS-A, PS-B] for the PLC type on the network station editing.

(5) Register the symbol. Refer to the following for the symbols that can be registered.

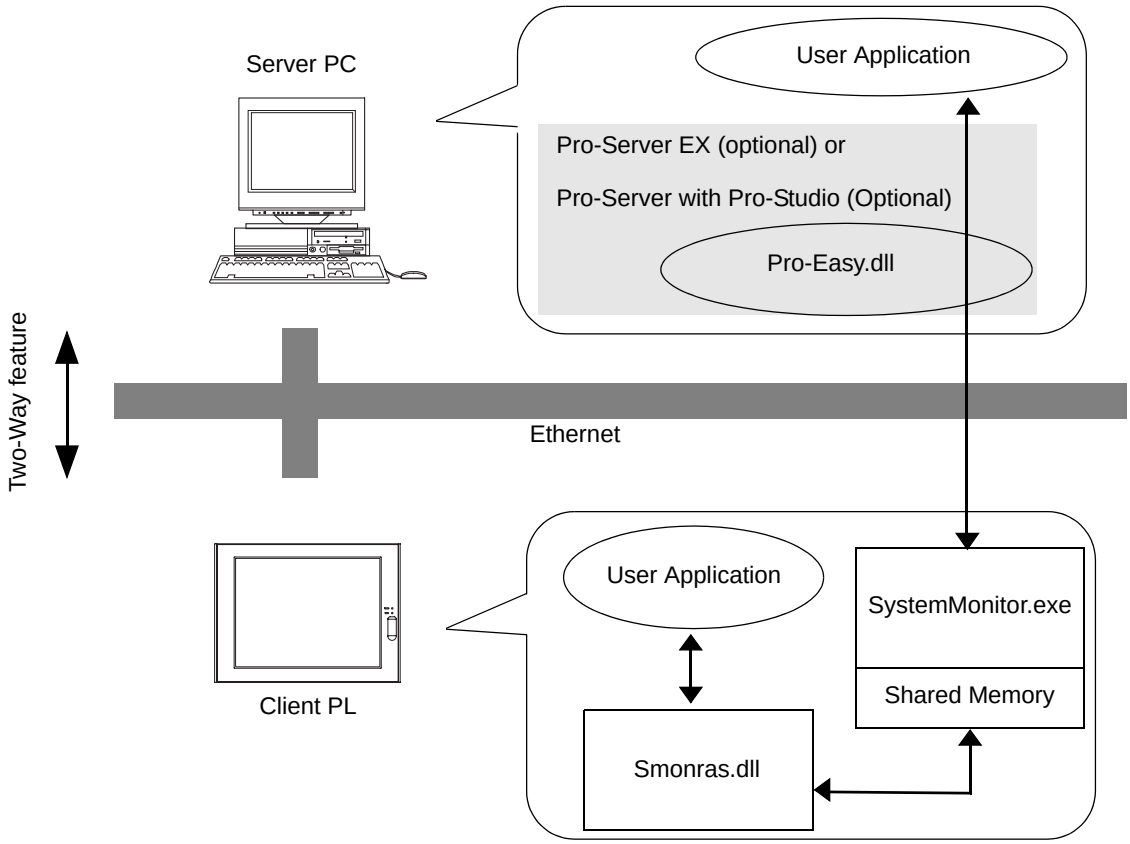
SEE → ■ *List of Device Addresses (page7-21)*

NOTE

- You are not required to transfer the network project file created with the Pro-Studio to the client PL.

7.4.4 Reading/Writing the Status of the System Monitor/RAS Feature

The read/write operation of the operating conditions of the client PL and System Monitor/RAS feature can be performed from the server PC via the Pro-Server.



- The status of the System Monitor/RAS feature is stored in the shared memory for which device address is assigned.

SEE→ *■List of Device Addresses (page7-21) / ■Bit Assign of Error Event, and Error Mask (page7-23)*

- The status of the System Monitor/RAS feature is transferred to the Pro-Server via Ethernet from the SystemMonitor.exe. The RAS feature including voltage, FAN, and temperature etc., can be monitored by monitoring the device addresses assigned from the Pro-Studio.
- The user applications in the server PC monitors the RAS feature through the Pro-Easy.dll program provided from the Pro-Server.
- The client PL shares the data with the user applications on the server PC by using the shared memory. The data transfers on both sides are processed via the Smonras.dll and Pro-Easy.dll programs.
- The client PL can be shut down and re-started by writing specific value to the software reset port.

NOTE

- For the details of Read/Write to the devices and access procedures, refer to the "■List of Device Addresses" on the next page.

■ List of Device Addresses

Device	Device Type	Device Symbol	Read/ Write	Bit Access	16-bit Access	32-bit Access
VcoreA Voltage*1	WORD	VLT	Read	-	VLT0	-
VcoreB Voltage*1	WORD				VLT1	
+3.3V Voltage*1	WORD				VLT2	
+5.0V Voltage*1	WORD				VLT3	
+12V Voltage*1	WORD				VLT4	
-5.0V Voltage*1	WORD				VLT5	
-12V Voltage*1	WORD				VLT6	
Number of Revolution of CPU FAN *2	WORD	FAN			FAN0	
Number of Revolution of System FAN *2	WORD				FAN1	
System Temperature *3	WORD	TMP			TMP0	
CPU Temperature *3	WORD				TMP1	
System2 Temperature *3	WORD				TMP2	
DIN	WORD	DIN		DIN00-DIN03	DIN0	
DOUT	WORD	DOUT	Read/ Write	DOUT00-DOUT03	DOUT0	
Error Event	WORD	ERR	Read	ERR00-ERR0E	ERR0	
Internal Memory Area *4	WORD	LS	Read/ Write	LS00000-LS0000F to LS02550-LS0255F	LS0000 to LS0255	LS0000 to LS0254
Shared Memory	WORD	PL		PL00000-PL0000F to PL02550-PL0255F	PL0000 to PL0255	PL0000 to PL0254
Software Reset Port *5	WORD	RST	Read/ Write	-	RST0	-
Error Mask *6	WORD	ERRM	Read	ERRM00-ERRM0E	ERRM0	-

*1 When monitoring the voltage with the device monitor, the unit is “mV”.

*2 When monitoring the number of revolutions with the device monitor, the unit is “rpm”.

*3 When monitoring Temperature with the device monitor, the unit is “°C”.

*4 Used for only the system to read/write the data and perform monitoring operation.

*5 Shuts down and restarts the operation system on the client PL.

*6 Indicates the error event that is being monitored by the PL.

IMPORTANT

- When “Forced Shutdown” or “Forced Reboot” is written to the device address, the system automatically shuts down/restarts the operation system without prompting the confirmation for saving the data on current applications.
  Take extra cautions when performing write operation in order to avoid accidental data loss.

Value to be Written		Operation
Decimal Number	**Hexadecimal Number**	
1	0001	Shutdown
2	0002	Reboot
257	0101	Forced Shutdown
258	0102	Forced Reboot

■ Bit Assign of Error Event, and Error Mask

Device Name	Item	Bit
DIN	DIN0	DIN0
	DIN1	DIN1
	DIN2	DIN2
	DIN3	DIN3
Error Event	VcoreA Voltage Error	ERR00
	VcoreB Voltage Error	ERR01
	+3.3V Voltage Error	ERR02
	+5.0V Voltage Error	ERR03
	+12V Voltage Error	ERR04
	-5.0V Voltage Error	ERR05
	-12V Voltage Error	ERR06
	CPU FAN Error	ERR07
	System FAN Error	ERR08
	Reserved	ERR09
	System Temperature Error	ERR0A
	CPU Temperature Error	ERR0B
	System2 Temperature Error	ERR0C
	Watchdog Timer Error	ERR0D
	Reserved	ERR0E
	Backlight Error	ERR0F
	SMART Error	ERR10
Error Mask	VcoreA Voltage Error	ERRM00
	VcoreB Voltage Error	ERRM01
	+3.3V Voltage Error	ERRM02
	+5.0V Voltage Error	ERRM03
	+12V Voltage Error	ERRM04
	-5.0V Voltage Error	ERRM05
	-12V Voltage Error	ERRM06
	CPU FAN Error	ERRM07
	System FAN Error	ERRM08
	Reserved	ERRM09
	System Temperature Error	ERRM0A
	CPU Temperature Error	ERRM0B
	System2 Temperature Error	ERRM0C
	Watchdog Timer Error	ERRM0D
	Reserved	ERRM0E
	Backlight Error	ERRM0F
	SMART Error	ERRM10

■ Error Messages

The following table lists the error messages which concern the remote RAS feature and are displayed by the Pro-Server during device read/write operations.

Error Code		Error Message
Decimal Number	**Hexadecimal Number**	
9530	253Ah	RAS Initialization Error
9531	253Bh	Command not supported.
9532	253Ch	Access type not supported.
9533	253Dh	Read/Write type not supported.
9534	253Eh	Access to the device is rejected.
9535	253Fh	Value setting to the device/retrieval failed.
65535 (No Code)	FFFFh	Returned when read/write of invalid values or unsupported device is performed for Voltage, Temperature, and number of revolution of the FAN.

SEE→ *For error messages other than listed above, refer to "Pro-Server EX Reference Manual" or "Pro-Server with Pro-Studio for Windows Operation Manual".*

7.4.5 Restrictions

■ Supported Pro-Server Features

The following table lists the features of the Pro-Server that are supported by the PL.

When using Pro-Server EX

For the details of each feature, refer to "Pro-Server EX Reference Manual".

- DDE Feature
- Simplified DLL Feature (ProEasy.dll)
- OPC Server Interface
- Data Transfer Feature
- VBA Feature Assist
- Device Data Backup/Restore Feature
- Capture Screen Save Feature
- Device Monitor
- Read Time Measurement

When using Pro-Server with Pro-Studio for Windows

For the details of each feature, refer to "Pro-Server with Pro-Studio for Windows Operation Manual".

- DDE Feature
- Simplified DLL Feature (ProEasy.dll)

- OPC Server Interface
- Data Viewer (Pro-Server with Pro-Studio for Windows Ver.4.0 or higher is required.)
- VBA Feature Assist
- Device Data Backup/Restore Feature
- Security Feature
- Device Monitor
- Read Time Measurement

■ Supported Simplified DLL Features

The simplified DLL features supported by the PL are as follows:

- Direct Read Function
- Direct Write Function
- Cache Read Function
- Retrieval of Multithreading Handle
- Release of Multithreading Handle
- Loading of Network Project File
- Error Code String Conversion.
- Participant Station Status Readout Function
- Initialization of Simplified DLL
- Termination of Simplified DLL

NOTE

- Note that the PL-supported OS and features supported by Pro-Server are different.
- When using the Remote RAS feature together with Pro-Server in PL, be sure to select different port numbers.

7.5 Restarting/Shutting down the PL from the Server

When the Pro-Server is not installed on the system, you can shut down and/or restart the PL from the server PC via the network. The installer for this application is included in the software which can be downloaded from the Pro-face support site “Otasuke Pro!” (in \Utility\Shutdown).

When the installer is started, you are asked to select the application for server or the client. Select the desired application, and follow the instruction on the screen to complete the installation.

The installed applications are stored in the following folder.

File Name	Folder (Same for both Windows® XP and Windows® 2000)
PSClt.exe	C:\Proface\Shutdown\Client
RSSvr.exe	C:\Proface\Shutdown\Server

NOTE

- For the operation procedure of this feature, refer to the online help of the Remote Shutdown Application.
- Both applications (for server and client) can be installed on the PL to achieve self-control system. In such a case, however, the PL should be connected to a network.
- If the Remote Shutdown feature is executed, the PL unit will be in the Soft OFF Status. (Power is still supplied to a part of circuits.)

8 Maintenance

1. Cleaning the Display
2. Cleaning the Fan Filter
3. Periodic Inspection Items
4. Replacing the Installation Gasket
5. Replacing the Backlight
6. Replacing the Internal Battery

This chapter explains cautions and inspection criteria that will ensure trouble-free use of the PL.

8.1 Cleaning the Display

The display of the PL needs to be clean. When the surface or frame of the display gets dirty, soak a soft cloth in water with a neutral detergent, wring the cloth tightly, and wipe the display.

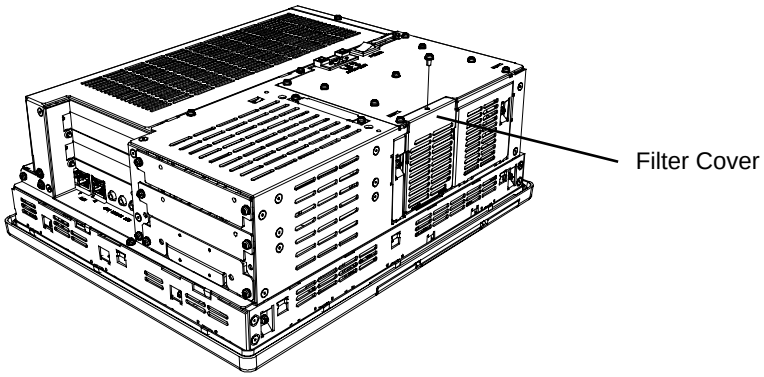
IMPORTANT

- Do not use paint thinner, organic solvents, or a strong acid compound to clean the unit.
- Do not use hard or pointed objects to operate the touch-screen panel, since it can damage the panel surface.

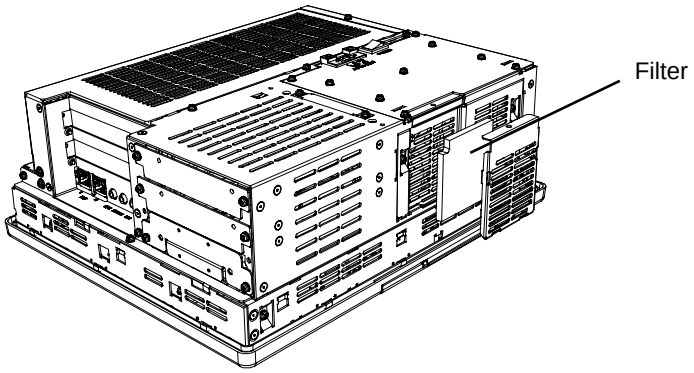
8.2 Cleaning the Fan Filter

Excessive dirt and dust in the filter of the PL's electric fan can potentially affect the performance of the unit. Regular inspection and cleaning of the filter is strongly recommended.

(1) Unscrew one screw fixing the fan filter cover.



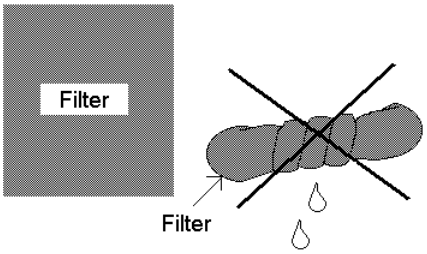
(2) Remove the filter from the fan cover.



(3) Clean the filter completely. If stubborn dirt or stains are present, wash the filter with a neutral detergent.

IMPORTANT

- Do not wring the filter to dry it.



- Dry the filter in the shade.
- Dry the filter completely before reattaching.

(4) Put the filter on the unit, and install the filter cover on the unit by fastening one screw.

8.3 Periodic Inspection Items

Be sure to inspect the PL periodically to ensure it is in good working condition.

■ Ambient environment check points

Is the ambient temperature within the specified range?

Ambient Operating Temperature	PL693*-T41, PL793*-T41 Model without FAN (CPU: CeleronM 1.3GHz)	5 °C to 40 °C (When using HDD) 0 °C to 40 °C (When NOT using HDD)
	PL693*-T42, PL793*-T42 Model attached FAN (CPU:PentiumM1.6GHz or CeleronM 1.3GHz)	5 °C to 50 °C (When using HDD) 0 °C to 50 °C (When NOT using HDD)

- Is the ambient humidity within the specified range (10%RH to 85%RH)?
- Is the atmosphere free of corrosive gas?

■Electrical specifications check

- Is the voltage adequate (AC85V to AC265V, 50Hz to 60 Hz)?

■Installation check points

- Are all connection cables firmly connected?
- Are any bolts or screws loose?
- Are there any flaws or tears on the moisture resistant gasket?

■Display check

- Is the display bright enough?

NOTE

- When the PL's backlight needs to be replaced, please contact your nearest authorized service center for prompt service

8.4 Replacing the Installation Gasket

The installation gasket provides protection against dust and moisture.

IMPORTANT

- A gasket which has been used for a long period of time may have scratches or dirt on it, and could have lost the moisture resistance to be equivalent to IP65f. when installing the PL removed from the enclosure again, the moisture resistance to be equivalent to IP65f may go down. Be sure to change the gasket at least once a year, or when scratches or dirt become visible.
- The PL unit installation gasket's model number is CA3-WPG10-01.

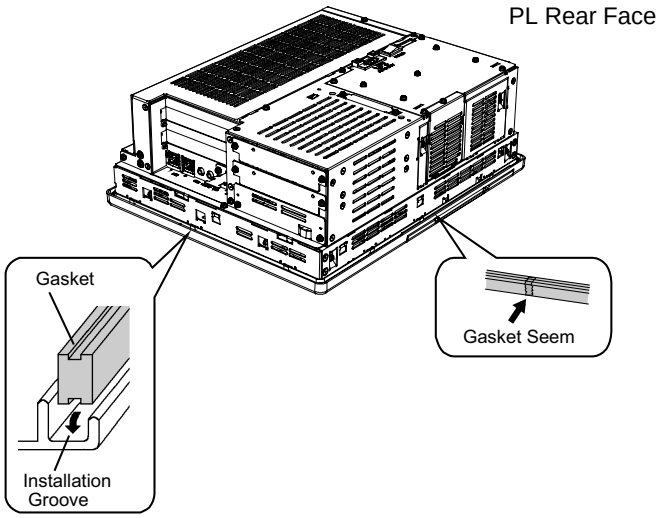
PL-6930 Series	PL6900-WP00
PL-7930 Series	PL7900-WP00

■ Installation Gasket Attachment Procedure

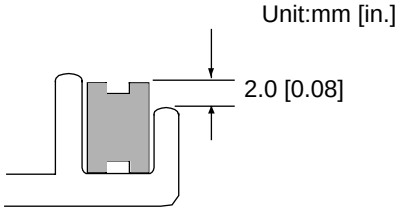
(1) Place the PL on a flat, level surface facing the display face downwards.

(2) Remove the gasket from the PL.

(3) Attach the new gasket to the PL. Be sure to insert the gasket into the PL's groove so that the gasket's groove sides are vertical.



(4) Check that the gasket is attached correctly to the PL. The upper surface of the gasket should protrude approximately 2 mm [0.08 in.] out of the groove evenly.



IMPORTANT

- Be sure to confirm the condition of installation of the gasket when you install the unit in the panel. The gasket must be inserted correctly into the groove for the PL's moisture resistance to be equivalent to IP65f.
- Since the gasket is flexible but not elastic, be careful not to stretch it unnecessarily, as doing so could tear the gasket.
- Be sure the gasket's seam is not inserted into any of the unit's corners, only in the straight sections of the groove. Inserting it into a corner may lead to its eventually tearing.
- To ensure stable resistance against dust and moisture, insert the gasket so that the seam is at the bottom of the PL unit.

8.5 Replacing the Backlight

PL units use a CFL, long-life type backlight. The actual life of the backlight however, will vary depending on the PL's operating conditions, and replacement may be required. A PL backlight has a life of 50,000 hours (approx. 5.7 years, at 25°C and 24 hour operation), when the backlight is lit continuously (time required for brightness to fall to half its normal level.)

NOTE

- When the LED setting is specified with the RAS control in Control Panel and a backlight burnout is detected, the status LED illuminates in orange.
- If the backlight or the display unit is damaged, the screen display will go out. Even if the screen goes out, however, there is a possibility that the touch panel is still operating correctly. Therefore, since any type of touch panel contact could have an unexpected or dangerous effect or result, be sure not to touch the screen when this condition occurs.
- A backlight burnout is detected by monitoring the consumed current. Depending on the condition of the backlight, a backlight burnout may not be detected or it may be detected before the backlight burns out completely.

⚠ WARNING

- Whenever changing the backlight, be sure the PL's power cord has been disconnected and that the unit is cooled down.
- High voltage runs through the wires in the backlight area. When the PL's power cord is connected and the PL is ON, do not touch the area!
- When the PL's power has just been turned OFF, the backlight area is still very hot! Do not touch the backlight area until the area is cooled down. Be sure to wear gloves to prevent being burned.
- The backlight is very fragile. Do not strongly push the glass tube or do not strongly pull it when replacing the Backlight. If the glass tube breaks, you may be injured.

■Preparation

Prepare the following beforehand.

- Replacement backlight (See your model on the table above.)

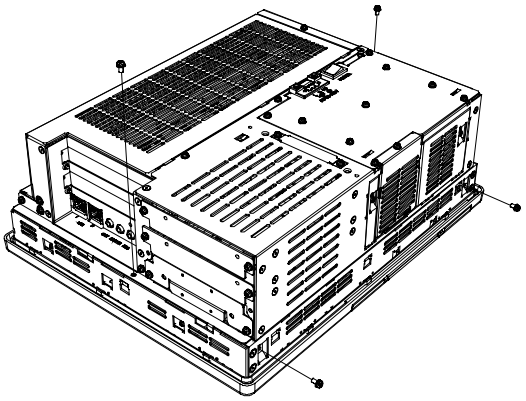
PL Type	Backlight Type
PL- 6930	CA3-BLU12-01
PL- 6931	
PL- 7930	CA3-BLU15-01
PL- 7931	

- A pair of clean (preferably new) cotton gloves.
- A Phillips screwdriver (no.2)

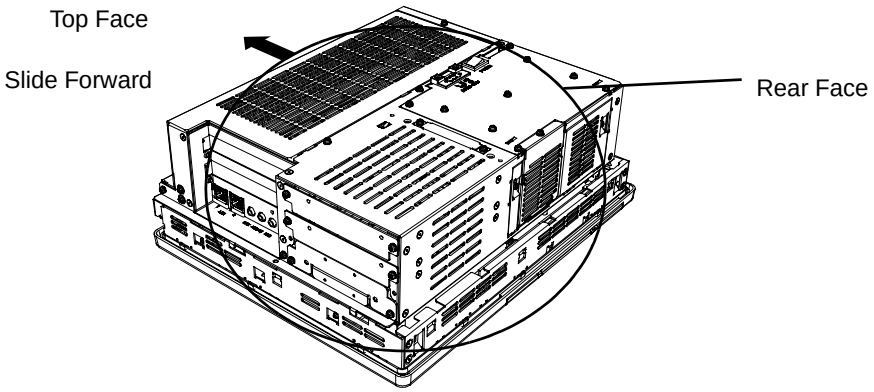
8.5.1 Procedure for replacing the backlight of PL-6930 Series

(1) Turn OFF the power switch of the PL and remove the power cable. Place the PL unit on a flat, level surface facing the display face downwards.

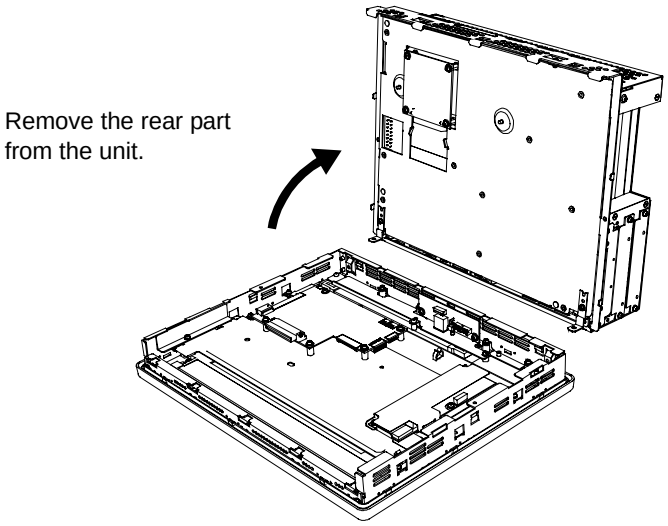
(2) Unscrew the screws (4 places). (See the figure below.)



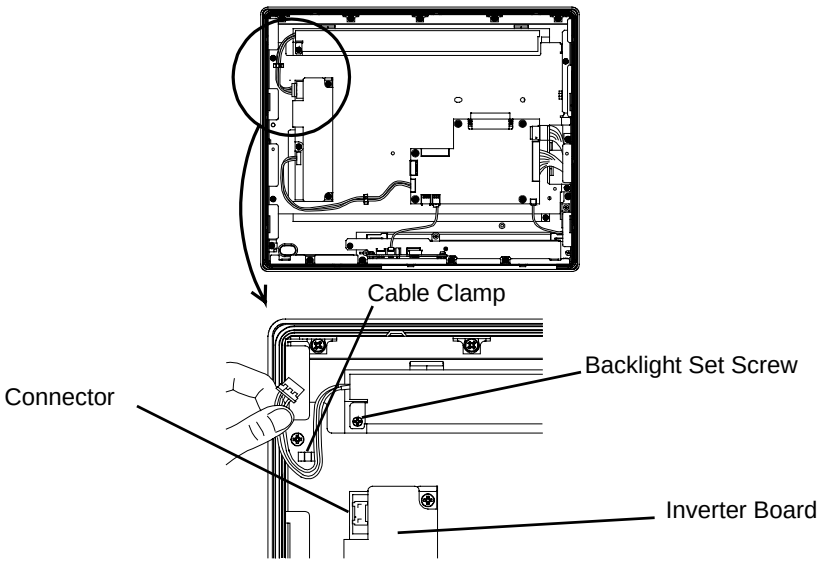
(3) Hold both sides of the front panel section and use your thumbs to slide (push) the chassis forward. (see figure.)



(4) The chassis can then be pivoted back and open. (See the figure below).

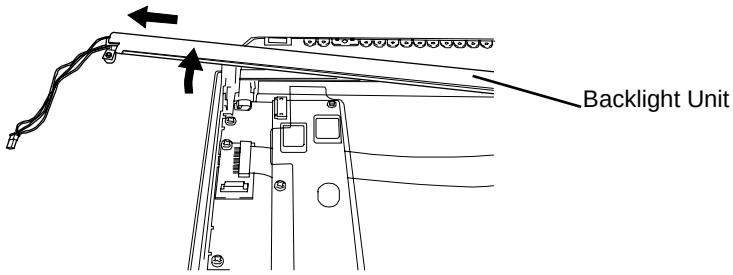


(5) Disconnect the power connectors from the inverter board. Remove the plug from the cable

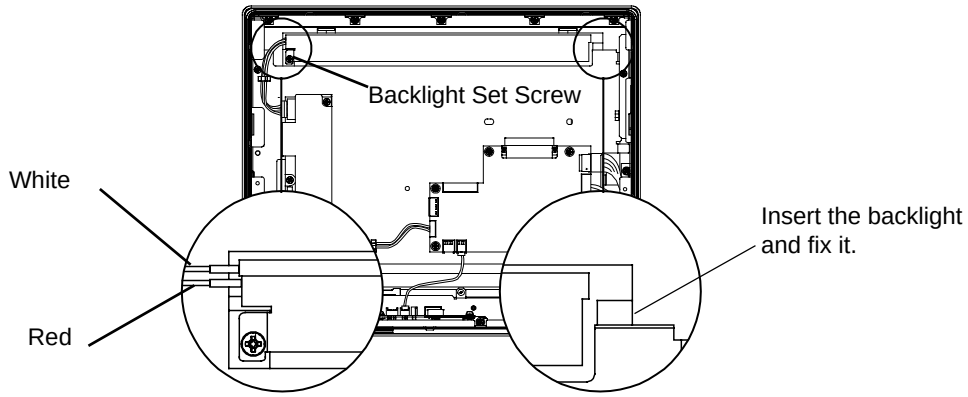


(6) Loosen the backlight's set screw.

(7))Lift the edge of the Backlight Unit, and remove the unit while sliding it along the groove.



(8) Insert a new Backlight Unit while sliding it along the groove.(The process is the opposite of (7)).



Insert the cable in both channels.

IMPORTANT

- Be careful that no dust or dirt adheres to the backlight surface or to the backlight holder.
- Be careful not to soil the Backlight with moisture, oil content or finger prints; otherwise, the life duration of the Backlight will be shortened.

NOTE

- Connect the backlight's power cable wires (white and red) to the two channels. Insert one white wire into the upper channel, and the two red wires into the lower channel.

(9) Tighten one backlight's set screw. (The torque force for the screw needs 0.19 N•m.)

(10) Connect the cable to the connector on the PL's inverter board. (The process is the opposite of (5))

IMPORTANT

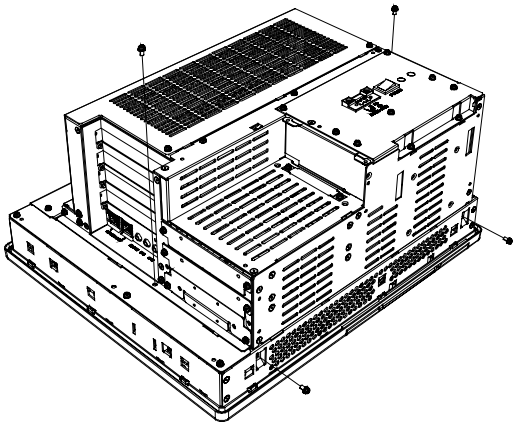
- Be sure the cable is inserted completely into the connector. An incompletely connected connector could cause an accident.
- As the cable doesn't get stuck in the PL, it should be fastened with the cable clamp.

(11) Return the rear of the PL to the unit and fix it with screws (4 places). First, tighten the 2 screws in the bottom then, do the 2 screws in the rear. (The process is the opposite of (2), (3), (4)). The torque force for the screws needs 0.5N•m to 0.6 N•m.

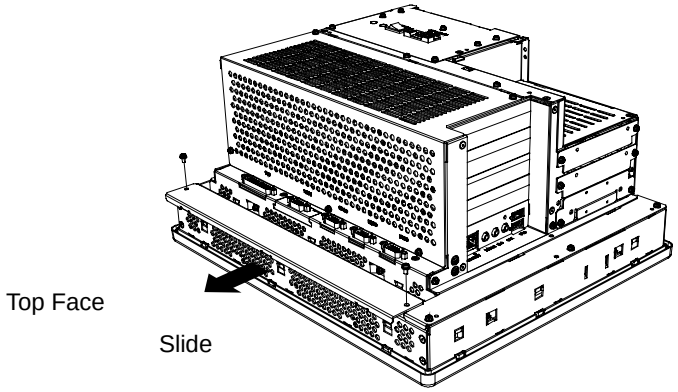
8.5.2 Procedure for replacing the backlight of PL-7930 Series

(1) Turn OFF the power switch of the PL and remove the power cable. Place the PL unit on a flat, level surface facing the display face downwards.

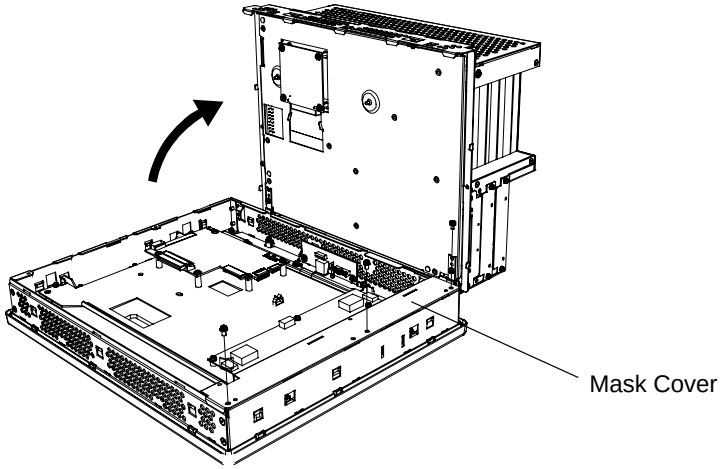
(2) Unscrew the screws (4 places). (See the figure below.)



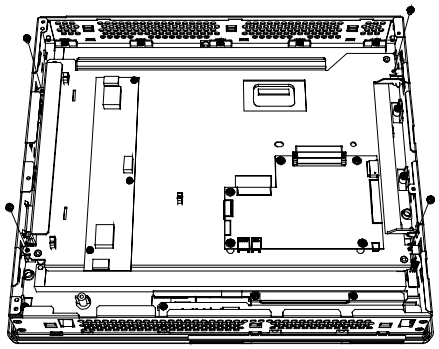
(3) Remove the two attachment screws, hold both sides of the front panel section and use your thumbs to slide (push) the chassis forward. (See the figure below.)



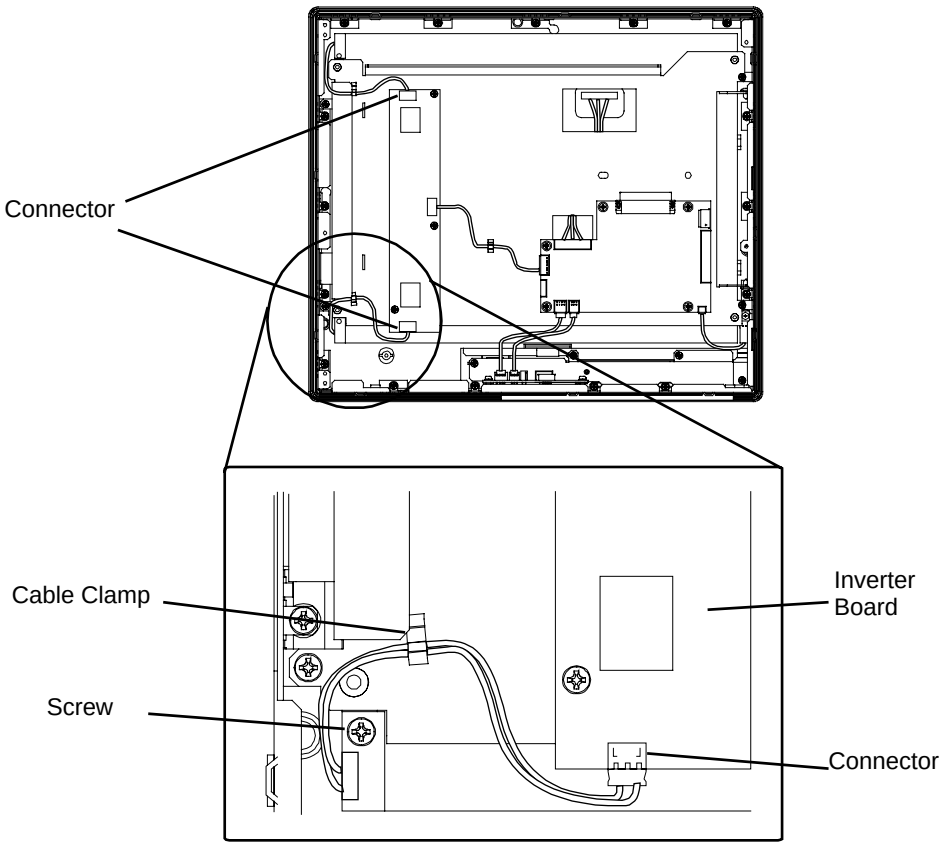
(4) Lift the chassis up with making a little slide upper, then remove the front cover. Remove the cover's three attachment screws.



(5) Remove the LCD unit attachment screws (4 places). (See the figure below.)



(6) Each backlight (upper and lower) is fixed in place with an attachment screw. Remove each of these screws.

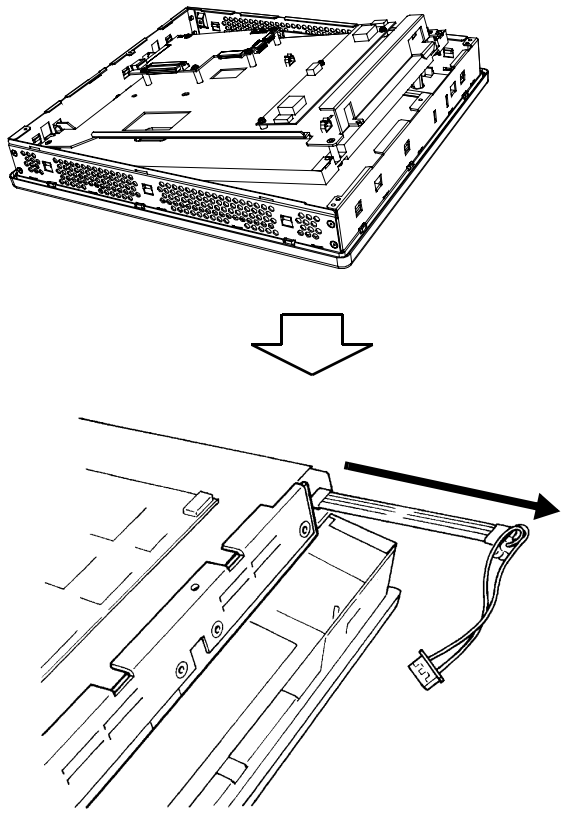


(7) Each backlight is fixed in place with an attachment screw. Remove each of them with a driver.

IMPORTANT

- Use a “0” sized Phillips screwdriver to remove the backlight attachment screws.
- Be careful not to lose any of the small attachment screws.
- Do not let any of attachment screws fall inside the PL unit’s chassis or front panel area, since it could cause an electrical short.

(8) Remove each backlight unit. Insert each new backlight.



(9) Insert the backlight like the above figure.

Backlights are used for each one on the both above and below the LCD. Exchange both backlights at the same time.

IMPORTANT

- Be sure to always change both of the PL backlights at the same time.
- Be sure that the backlight's power cord connector is inserted completely into the Inverter Board's receptacle. If not, the PL may be damaged.

(10) Screw the backlight's screws (2 places, above and below) and the LCD fixing screws (4 places). The torque force for fixing the backlight is 0.19N•m, and for fixing the LCD is 0.5N•m.

(11) Inset the connector in to the Inverter Board. Fix the cable with the cable clamp (2 places, above and below).

(12) Return the mask cover to the unit and fix it with the screws (3 places). Cover the front part with the rear cover (The process is the opposite of (4)).

(13) Fix the rear and front part with 4 pieces of screws (the procedure is the opposite of (2)). First, fix the bottom side with 2 pieces of screws, and then do the rear side with 2 pieces of screws as well. The torque force needs 0.5N•m to 0.6 N•m.

(14) Install the front cover on the unit with 2 pieces of screws (the procedure is the opposite of (3). The torque force needs 0.5N•m to 0.6 N•m.

8.6 Replacing the Internal Battery

The PL unit has an internal battery for backup of internal clock data.

Compatible Battery	Service Life
Lithium Battery CR2032 (Hitachi Maxell, Ltd.)	5 years

IMPORTANT

- The expected battery service life is 5 years, but the battery may die earlier. It is strongly recommended that you replace the battery regularly.
- When the battery is replaced, a part of the BIOS settings are initialized. Configure the BIOS setting again after replacing the battery.

⚠ CAUTION

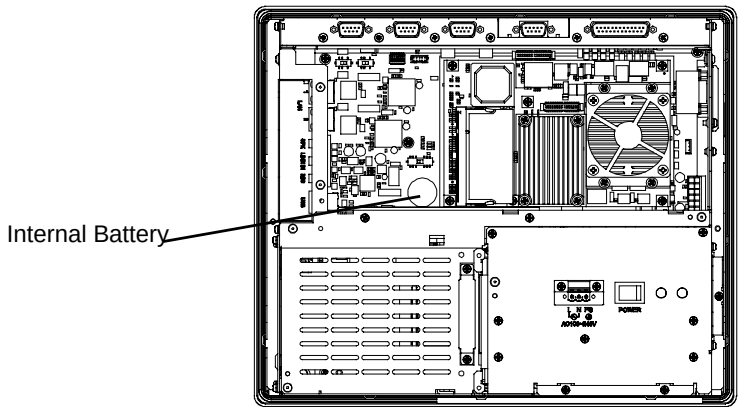
- A wrong way of exchange of batteries for the PL leads an explosion. The battery should be replaced only with the battery recommended by Pro-face.
- Before replacing the battery, be sure to turn OFF the PL unit's power.
- Be careful not to cause a short circuit.
- Do NOT touch any internal parts except the battery and the battery holder.
- During the replacement, be extremely careful not to drop the battery onto the PC board inside the PL unit. This may cause product failure.
- Dispose of used batteries according to the battery manufacturer's instructions.

■ Battery Replacement Procedure

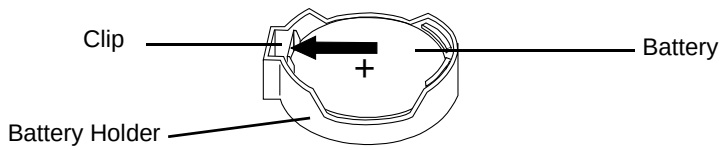
The battery is on the PC board inside the PL unit. Refer to "7.5 Replacing the Backlight" for how to open the PL unit.

SEE → *8.5.1 Procedure for replacing the backlight of PL-6930 Series (page8-8)*
8.5.2 Procedure for replacing the backlight of PL-7930 Series (page8-11)

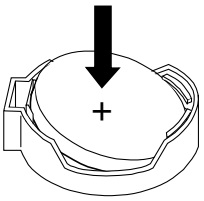
(1) Be sure to confirm that power is not supplied to the PL unit and open the unit.



(2) Remove the battery. Push the clip of the battery holder with your finger, the forceps etc. and the battery is pushed up and removed.



(3) Insert the new battery. Insert the battery in the opposite surface side of the clip of the battery holder first with the plus pole (+) facing upward. Push the battery from above until you hear the click to fit it in the battery holder.



IMPORTANT • Be sure the battery's plus(+) and minus(-) sides are correctly oriented.

(4) Return the PL unit to the original condition.

IMPORTANT • Be sure to adjust the time of the internal clock after replacing the battery.

A Appendices

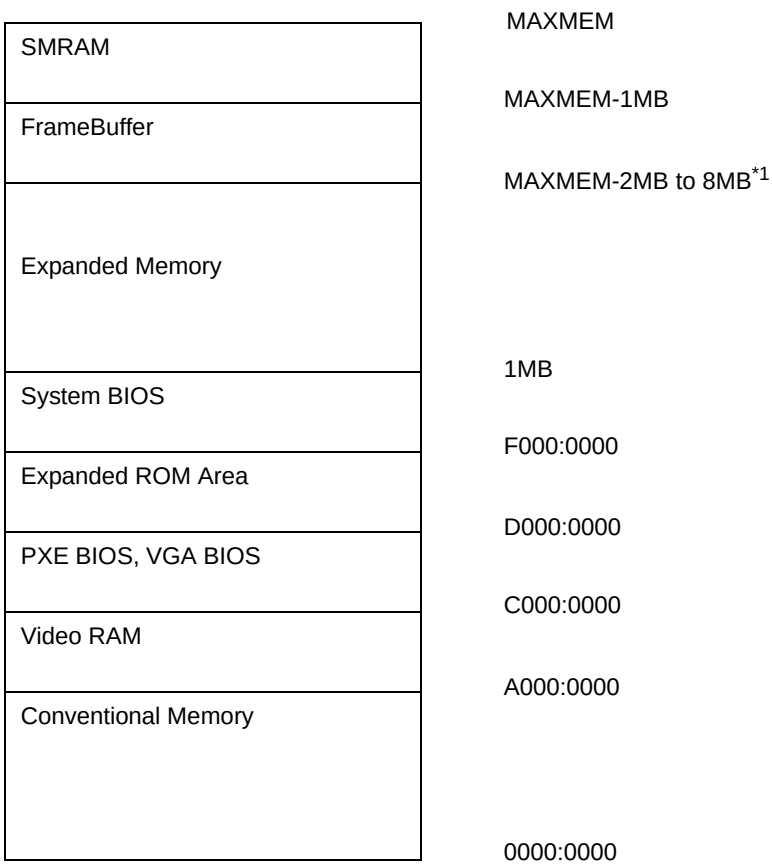
1. I/O Map
2. Memory Map
3. Interrupt Map
4. Consent Agreement

The following data explains the design of the I/O Map, Memory Map and Interrupt Map.

1 I/O Map

Address	AT System Device	System Device
0000H-001FH	DMA controller (8237)	
0020H-003FH	Interrupt controller (8259A)	
0040H-005FH	System timer (8254)	
0060H-006FH	Keyboard Controller	
0070H-007FH	Real-time clock, NMI mask	
0080H-009FH	DMA page register	
00A0H-00BFH	Interrupt controller 2 (8259A)	
00C0H-00DFH	DMA controller 2 (8237)	
00F0H-00FFH	Numeric data processor	
0170H-017FH	Hard disk (IDE)	
01F0H-01FFH	Hard disk (IDE)	
0200H-0207H	Game I/O	
0290H-029FH	Reserved	
02E8H-02EFH	Reserved	Touch Panel Serial Port 4 (COM4)
02F8H-02FFH	Serial port 2 (COM2) : General Use	
03B0H-03BBH	Video controller (VGA)	
03C0H-03DFH	Video controller (VGA)	
03E8H-03EFH	Reserved	Serial port 3 (COM3)
03F8H-03FFH	Serial port 1 (COM1) :General Use	

2 Memory Map



*1 The capacity allocated by "IGD-Memory Size" of the "Video (Intel IGD) Control Sub-Menu" screen of the BIOS setting is 1MB.

3 Interrupt Map

MEMO

- The interrupts and DMA channel will change depending on the PnP features of PCI/ISA.

■Hardware Interrupt List

	Description
NMI	Parity Error or I/O Channel Check
IRQ 0	Timer (in the Chipset)
1	Reserved
2	Cascade from Controller 2
3	Serial Port 2 (COM2): General Use Port
4	Serial Port 1 (COM1): General Use Port
5	Available for users *
6	Available for users *
7	Available for users *
8	Real Time Clock
9	Reserved (ACPI)
10	Serial Port 4 (COM4): (Touch Panel) General Use Port
11	Serial Port 3 (COM3)
12	Reserved
13	Numeric Data Processor
14	Hard Disk (IDE)
15	Hard Disk (IDE)

重 要

- The "*" mark indicates that, depending on the customer's settings, the following devices are automatically allocated as Plug and Play devices.

  Display Controller

  SMBus Controller

  Multimedia Device

  Network Controller

  USB Controller

■DMA Channel List

	Description	
DMA 0		For 8-bit transmission
1		
2		
3		
4	Cascade to controller 1	For 16-bit transmission
5		
6		
7		

4 Consent Agreement

■ DMC Corporation Mouse Emulation Software (TSC-1310D/DD) Software License Agreement

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(1) DMC guarantees that 90 days after the licensee purchased the product, neither material nor manufacturing flaws shall be found at the medium where the product has been recorded or stored. If any errors related to the material or manufacturing is recognized when the product is installed, we shall replace the medium used to install the product on the condition that we are notified of it within the guaranteed period.

(2) DMC shall grant the right to use the product at a state it has been supplied without explicit or implicit guarantee except for replacement of the medium containing product described in the above clause. Further, we do not guarantee that the product is suitable as useful for the licensee's specific purpose of use and that execution of the product is neither interrupted nor an error is found at its execution.

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(2) Transfer, leasing and sublicensing of the product to the third party.

(3) Deletion and/or change of display of the intangible property right including the copyright displayed on the medium containing the product.

7. Restrictions on Export

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